



Oregon Small Farm News

Oregon State University Small Farms Program

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Cover Photo:

Jeff Falen on electric G tractor.
Photo by Shawn Linehan

Black Oregon Land Trust Launches

By: BOLT Collective

Imagine: Black farmers and families in Oregon securely own and tend land, in community. They have the infrastructure and support they need to grow food and thriving businesses. They birth their children in sovereignty, live in right relationship with the earth and community, and remember our ancestral traditions to transform generations to come.

This is the vision of BOLT, the Black Oregon Land Trust. We are a collective of farmers, herbalists, birthworkers, mothers, artists and visionaries committed to our collective liberation. We believe access to land is a critical part of our sovereignty, and we are birthing this dream into reality!

In January 2021, we are launching BOLT as a non-profit organization that will be able to secure land for communal ownership and tending, and support thriving life in our communities. We do this work in reverence and relationship with the earth, the indigenous folks of these lands, and the calling of our ancestors.

Follow our journey and stay tuned for ways you can participate and support!

Learn more: <https://www.instagram.com/blackoregonlandtrust/>
<https://www.facebook.com/blackoregonlandtrust/>
<https://msha.ke/bolt/>



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Two New Faces Join The Small Farms Team

The OSU Extension Service Small Farms team has added two new faces over the past couple of months. Serving Marion, Polk, Clatsop, and Tillamook Counties - we are excited about their arrivals.

Julia Wentzel is thrilled to step into the role of Master Gardener and Small Farms Coordinator for Clatsop and Tillamook Counties!



Julia has a strong background in farming, food production, and education. After working on market gardens and small-scale vegetable gardens around the country, Julia served in Paraguay with the Peace Corps as an agriculture volunteer, collaborating with subsistence farmers and local committees to improve nutrition and food security through production. Julia went on to receive her Masters degree from the University of California at Davis, where she focused on developing experiential and applicable learning opportunities for students of agriculture.

Julia moved to Tillamook County to serve as the Local Food Programs Manager for Food Roots, a nonprofit committed to supporting the North Coast food system; there she worked to connect local farmers to local consumers through the FarmTable local food storefront, and through food access programming. She is excited to leverage and expand upon the community partnerships she forged through Food Roots in her new role. She also chairs the Tillamook County Wellness Coalition's Access to Healthy Food Committee, which provides a foundation for creative and collaborative pathways to food access across and beyond Tillamook County.

Hayley White is the new Agriculture Outreach Program Coordinator serving the Small Farms program in Polk and Marion Counties. Hayley's position is a unique collaboration between OSU Extension and the Polk Soil and Water Conservation District.



Hayley is an agriculture relations specialist and a native Oregonian whose passions have always included people, agriculture, and communications. Growing up on a farm, raising livestock, and exhibiting at the county fair, she experienced firsthand the importance of Extension services.

Hayley went on to major in Agriculture Education at Montana State University, a program specially designed for extension agents, where she received a hands-on, well-rounded educational experience. She has a Bachelor's in Agriculture Education and a Master's in Animal and Range Sciences. She joins the OSU Extension Service after departing the Idaho Department of Agriculture where she worked as an Agriculture Investigator, helping dairy farmers manage agricultural byproduct and maintain compliance with environmental laws. She hopes to combine her education, hands-on farming experience, and passion for people into a meaningful career as the Agriculture Outreach Coordinator for Polk and Marion Counties. 🌾

Jeff Falen, founder of Persephone Farm died on December 4, 2020 leaving a legacy of healthy soil, tight-knit community, inspiration and love

Jeff Falen started Persephone Farm in 1985, and Elanor O'Brien joined him in 1990, initially as an apprentice, and later as a life partner, and full partner in the farm. Their 55 acre organic vegetable farm on the South Santiam River evolved over 36 years. In 2020, they grew over 30 vegetable crops for farmers markets, stores, buying clubs, home delivery services, restaurants, and wholesale.

In 2004, Jeff and Elanor accepted the Oregon Tilth Producer of the Year award. Their acceptance speech inspired a lot of reflection among participants at Tilth's 30th Anniversary Conference (T-30) in Vancouver. The Conference was a collaboration between Washington Tilth Producers, and Oregon Tilth, Inc.

Their speech was originally printed by In Good Tilth (volume 16, number 1) on February 15, 2005. The original introduction in italics was written by Lacey Phillabaum, then editor of In Good Tilth. We retrieved the original article from the Oregon Tilth archive at the OSU Special Collections and Archives Research Center. Elanor shares some 2020 reflections at the end of this article.



Jeff repairs an irrigation riser on the farm.
Photo by Elanor O'Brien



Jeff inspects a field of leafy greens.
Photo by Shawn Linehan Photography

In a crowded class of talented farmers, Jeff Falen and Elanor O'Brien were named the Oregon Tilth Producers of the year at the 2004 Tilth 30th Anniversary Conference. Tilth farmers are pioneers in many fields, and the award honors an outstanding Tilth farmer who best achieves biologically sound and socially equitable agriculture.

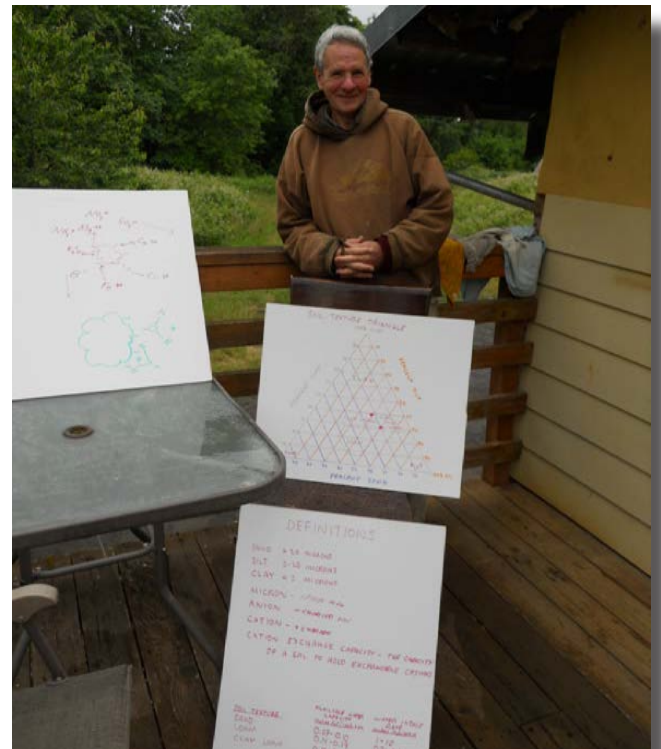
After a laudatory and self-congratulatory evening of award-giving and receiving, Falen and O'Brien accepted their award with a speech that shook things up. They urged the assembled audience not to be complacent with what has been achieved, but to forge new means and methods of sustainability in all sectors of the organic industry and beyond. Their speech was moving and roused the sleepy, overfed audience to jump to their feet in a standing ovation. Their speech is reprinted here with permission.

Jeff: So many people have helped Persephone Farm learn and grow over the years, whether by sharing knowledge or skills or providing sheer inspiration, that it would be impossible to thank everyone individually. But we are truly a collage, a reflection of many faces, from the Madras peppermint farmer who taught me to move irrigation pipe – eight hours a day, seven days a week – on his 100-acre spread,

From David Lively, who gave me the address of Persephone Farm in 1989 when I was seeking a farm apprenticeship (who knew I'd become the apprentice who wouldn't leave?), to Suzy Evans, who organized a midwinter growers conference which has borne so much fruit, we have been the recipients of extraordinary generosity as we strive to create a farm ecosystem that sustains us as well as people far into the future. We can only hope to give back a fraction of what we have received.

Organic farming is largely about the health of the soil. This focus is commendable because the prosperity of future generations depends on how well we take care of the extraordinary ecosystem beneath our feet. Organics has brought a long-term view to agriculture that is at the root of true sustainability. Yet, while we feel Persephone Farm has made strides in creating a sustainable soil, when we look past the soil we see much, much more work to be done.

At times, this dependence causes us great despair, but it is also a challenge, a challenge to make our farm a truly sustainable operation, one that is capable of feeding people healthy food for a thousand



Jeff and Elanor taught numerous apprentices and other farmers about the art and science of organic and sustainable farming.

Photo by Elanor O'Brien

We live in dark times, when the national leadership cares nothing for the next generation, let alone the next thousand generations. Yet, even if we had enlightened leadership, the task of achieving sustainability is so monumental that it requires major effort on the part of every inhabitant of the planet, and especially in America where we consume so much. Humanity can go on drilling, mining and consuming until the Earth stops giving, or we can use our ingenuity, our vast wealth, and a sense of what is right to create a truly sustainable culture so that those who come after us will not have to live in a depleted world.

Elanor: It is well to celebrate 30 years of changing our relationship with the soil. But, as we celebrate, let's also see the last 30 years as a starting point. It is up to us to keep pushing the frontier toward a sustainable culture. If we push hard enough perhaps our leaders will follow.

Rest in peace dear friend. Jeff Falen, 1957-2020.

Some reflections on the last 15 years from Elanor O'Brien:

Well folks, in rereading what we wrote 15 years ago, which was itself a reflection on our first 20 years of farming, I would have to say, "Same stuff different day." We are still living and farming as if there is no tomorrow. If our speech at T-30 "shook things up," I haven't seen it. I speak from the inside out; change begins with me. Any strides Persephone has made in an ecologically sane direction have been stumbling and accompanied by setbacks.

For example, over the past 15 years we have installed over twenty kw of solar arrays which power all of the farm's annual electrical needs, but why does it take so many kilowatts to power our farm? Why did we not focus more on efficiency? Why are we still using the same old inefficient, leaky walk-in cooler? In 2006 we added an electric, Allis Chalmers Model "G" cultivating tractor to our retinue, but our second model G as well as our "Drangen" lay down harvest tractor is still powered by gasoline. We have added lots of habitat for beneficial insects, pollinators, and wildlife, and decades of cover cropping have allowed us to reduce the off-farm fertilizers we apply, but we still disrupt soil strata many times a year with our meddling. We now use hot water and much less propane to warm the tiny seedlings in our propagation greenhouse, but we still burn diesel while trucking our produce up and down I-5.

We have trained many farmers and farmers-to-be, but Jeff and I failed to design a business model which would outlive our ability to farm. Persephone Farm's 36th season will be its last: one indication that attempting to grow truly seasonal produce outside in the sun, wind and rain is something only a couple of freaks like Jeff and Elanor would attempt.

I miss my partner in freakdom. Where else could I find someone who is willing to limit driving speeds to 55 mph*, or who agrees with me that heating the outdoors with propane blowers is insane? Despite my cranky pessimism I have a lot of love and appreciation for farmers everywhere who observe and listen

Persephone
Farm uses
bicycles for
on-farm
transportation.
Photo by
Shawn Linehan
Photography



carefully, who are thoughtful, careful and deliberate, who are always thinking and rethinking and rethinking again, who love the place which is their farm. There is a culture of cooperation rather than competition, a culture of generosity and sharing among Pacific Northwest farms which can't be beat. Persephone would not have lived as long as it did without the help of many friends. Lots of our farms grew up together, and we had the pleasure to get to know newer growers as well. These connections have fed us for decades and are still feeding me and helping me through several tough transitions right now.

As fumbling as our efforts to farm as if the future matters have been, we could not have done any of it without this community, so that part of the message we wrote 15 years ago is timeless. May it ever be so. 🌱

*At 65 mph, vehicles burn about 15% more fuel per mile than they do at 55 mph. This results in about 15% more carbon dioxide (a greenhouse gas) emissions per mile. In addition, EPA test data shows that average speeds of 65 mph result in the following emissions increases, compared to 55 mph, on a per mile basis: carbon monoxide 153%, nitrous oxide 9%, volatile organic compounds 55%. Can you imagine what a different world we would live in if each of us made a commitment to "drive 55"? Cleaner air for all and a dramatic reduction in carbon emissions? It is such a simple act but so few are willing to do it. If you want to honor Jeff's memory, consider slowing down to 55 mph for the sake of all beings sharing this world, and for their descendants.

Acknowledgements:

Thank you to the OSU Special Collections and Archives Research Center for maintaining the Oregon Tilth archives, and finding this issue of In Good Tilth: <http://scarc.library.oregonstate.edu/findingaids/?p=collections/findingaid?id=3094>. Thanks to Oregon Tilth, Inc., and Lacey Phillabaum for documenting the original text of the speech in 2005, and writing the original introduction. Thanks also to Shawn Linehan Photography for permission to use her photographs. Thank you to Nick Andrews, Organic Vegetable Extension agent, for encouraging and supporting farmers everywhere, and facilitating this article.

What to Watch This Winter? Small Farm School recordings are now available

By: Heidi Noordijk, Oregon State University, Small Farms Program

Small Farm School switched to online format in 2020 due to COVID-19. Recordings of presentations are posted online and available for viewing. Going virtual has allowed speakers and attendees from around the state, the PNW, and throughout the country to participate in the programming. Those attending real-time sessions were able to interact with speakers via chat during facilitated question and answer periods. Participants have appreciated increased access to programming from their homes and having the option to view recorded presentations at their convenience. Moving to an online format has opened doors for creative ways to offer future programming to reach a larger state-wide and nation-wide audience.

Small Farm School had 270 registered participants from 20 Oregon counties and 15 states. Eighteen sessions were offered live from mid-September to early December and covered topics on sustainable farming production, beginning farmer education, equitable food access, business, marketing, and more. Sessions were 90 minutes long and took place Tuesday and Thursday evenings. The

#8 Dry Farming Vegetable Crops in the Maritime PNW



- [Amy's Slides](#)
- [Matt's Slides](#)
- [Intro to Dry Farming](#)
- [Dry Farming Collaborative](#)
- [Web Soil Survey](#)

Small Farm School Sessions Recordings of all past speakers who allowed us to record their presentations are available on the Small Farm School webpage <https://blogs.oregonstate.edu/smallfarmschool/recorded-sessions-resources/>

two Equitable Food Access sessions organized by Michelle Week of Good Rain Farm and in partnership with Friends of Family InFARMation had the greatest attendance with over 140 participants each evening. These sessions provided an opportunity for the farming community at large to listen to experiences from the BIPOC farmer community.

Small Farm School is a collaboration between OSU Extension, Clackamas Soil and Water Conservation District, Clackamas Community College, Friends of Family Farmers, and Rogue Farm Corps. Stay tuned for Small Farm School 2021 updates.

Bookkeeping Practices	Data Tracking on Your Farm
Dry Farming: Vegetable Crops in the Maritime Pacific Northwest	Equitable Food Access: Hear from Farmers in the Field
Equitable Food Access: How to Contribute to Oregon's Food Sovereignty Network	Farm to Vase: Growing and Designing Specialty Cut Flowers
Food Safety from Field to Market	Running a CSA: Know Before You Grow
Growing and Marketing Winter Vegetables West of the Cascades	Soil Ecology for Small-Scale Veggie Production
How to Start a Farm Business	Sustainable Hemp Production
Marketing, Promotion & Brand Identity	Vegetable Weed Management
Pasture Management (Slides only, session not recorded)	Poultry for Beginners

Online Courses offered by the OSU Small Farms Program

Available anytime online and self-paced. Register at: <https://workspace.oregonstate.edu/catalog-page#all-courses>



**GROWING FARMS ONLINE:
SUCCESSFUL WHOLE FARM
MANAGEMENT**

FREE
Whole Farm Management
Book Included with
Registration

On Demand. Access Anytime

3-6 hours per online module

Online

To Growing Farms: Successful Whole Farm Management
<https://workspace.oregonstate.edu/course/growing-farms-online-successful-whole-farm-management>



FREE

**GROWING FARMS:
INTRODUCTION TO PASTURE
AND GRAZING MANAGEMENT**

On Demand. Access Anytime.

Online

Free

To Pasture Management:
<https://workspace.oregonstate.edu/course/pasture-and-grazing-management>



**GROWING FARMS SHORT
COURSE: ECOLOGICAL
STRATEGIES FOR MANAGING
INSECTS ON A FARM**

\$25

On Demand. Access Anytime.

2-4 hours

Online

To Ecological Strategies
<https://workspace.oregonstate.edu/course/growing-farms-short-course-ecological-strategies-for-managing-insects-on-a-farm>

2020-21 Variety Showcase + Winter Vegetable Sagra

By: Lane Selman and Heidi Noordijk, Oregon State University, Small Farms Program

December kicked off virtual programming for the Variety Showcase + Winter Vegetable Sagra highlighting garlic, radicchio, and collards. Speakers from throughout PNW, country, and Italy participated with a mix of TED-style talks, interactive Q&A sessions, cooking demos, and virtual field tours. Programming will continue through March.

Garlic Week

Avram Drucker of Garlicana in Southern Oregon gave a spectacular talk on garlic types and shared his journey on becoming a garlic breeder. Drucker authored the Garlic Types and Market Niches Zine, an informational piece on garlic varieties for organic growers. The zine is available as a PDF on the Eat Winter Vegetable Project website.

Other Garlic Week presentations included:

- Phil Simon of USDA-ARS will discuss history and his garlic collecting expeditions in Central Asia, where wild garlic still exists in “Garlic in History, and History in Garlic: Diversity & Domestication”
- Barbara Hellier of USDA-ARS will discuss genetic diversity and her role as curator of the National Plant Germplasm System’s Allium Collection.
- Linda McLean of WSU Colville Reservation Extension will present on the Inchelium Red Garlic project which connects youth with knowledgeable elders to learn about traditional cultural foods and harvesting & preparations practices
- Irwin Goldman of University of Wisconsin will present the many medicinal properties of garlic in “Garlic is Better than Ten Mothers: An Exploration of Health Benefits”

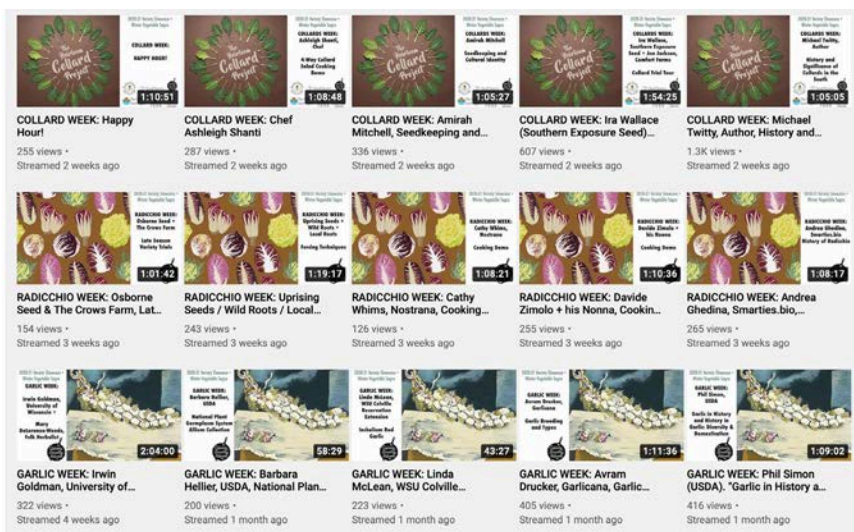
Garlic Types and Market Niches



- Mary DeLorenzo-Woods, “Folklore and Mysticism of Garlic.”

Collard Week

Michael Twitty kicked off Collard Week in mid-December with a talk on “The History and significance of Collard Greens in the South”, this was a very popular presentation with more than 1400 views. Michael Twitty is author of The Cooking Gene, a James Beard Award winner in 2018 for Book of the Year. Ira Wallace of Southern Exposure Seed Exchange facilitated Twitty’s talk and then presented the following day. Wallace shared the vision and impetus behind the Heirloom Collard Project, a project that aims to build a coalition of seed stewards, gardeners, farmers, chefs, and seed companies



Above: Recordings of Garlic Week, Radicchio Week, and Collard Week can be found on the Culinary Breeding Network’s YouTube Channel <https://www.youtube.com/c/CulinaryBreedingNetwork/videos>

Below: Garlic Zine authored by Avram Drucker, edited by Alex Stone and Lane Selman of Oregon State University
Illustrations by Fiona Murray.

working to preserve heirloom collard varieties and their culinary heritage.

Ira Wallace's presentation was followed up with information and data from the collaborative variety trials along with tours of collard plantings from several farms participating in the project including OSU NWREC's Learning Farm. Jon Jackson kicked off the farm videos with a tour of Comfort Farms, a farm in Georgia that helps struggling veterans find connection and belonging as they care for the land and animals.



Collard bunch from Heirloom Collard Project trials at OSU's North Willamette Research and Extension Center Learning Farm. Photo by Heidi Noordijk

Later in the week Amirah Mitchell gave an inspiring talk sharing her background and love of collards and community and then shared a presentation on "Saving Collard Seeds". Amirah Mitchell is studying horticulture at Temple University and works at Greensgrow Farms and Truelove Seeds.

Collard Week concluded with a double dose of sessions. Chef Ashleigh Shanti led a cooking demonstration of her 4-way collard salad followed by a discussion with Chris Smith of The Utopian Seed Project on cooking with collards. Collard Happy Hour, a lively conversation between collard farmers, researchers, seed growers, authors, and chefs wrapped up the weeklong collard celebration.

2021 Programming for Variety Showcase + Winter Vegetable Sagra

All events will be live-streamed at 10:00 am PST on YouTube. You will be able to ask questions in the chat box. All sessions will be recorded and posted to the Culinary Breeding Network's YouTube Channel for later viewing.

Brassica Week (January 11-15)

- Jim Myers, Oregon State University with "Baffling Brassicas: Deconstructing Brassica rapa, B. oleracea, and B. juncea."

- Breeder Andrea Ghedina of Smarties Bio and farmer Jason Salvo of Local Roots Farm talking "Traditional Italian Brassicas from NE Italy, including Fiolaro di Creazzo, Broccolo di Bassano and Verza Moretta Cabbage"
- Zach Stansell, Cornell University presenting "From landrace to modern hybrid broccoli: the genomic and morphological domestication syndrome within a diverse B. oleracea collection"
- Phillip Griffiths, Cornell University discussing "Brassica Fusion Breeding"

- Hannah Swegarden with "Rooting for Rutabaga"

January 25th - 29th: Winter Squash

- Monday, Jan 25: Michael Mazourek, Cornell University. "Winter squash background, diversity and breeding"
- Tuesday, Jan 26: Alex Stone, Oregon State University. "Tetsukabuto, the wonder squash!"
- Wednesday, Jan 27: Chef Lisa Horness. "Cooking with Tetsukabuto"
- Thursday, Jan 28: Glenn Teves, University of Hawaii; Linda Wessel Beaver, University of Puerto Rico; and Edmund Frost, Commonwealth Seed (Moderated by Jay Bost). "Tropical Pumpkin"
- Friday, Jan 29: Alice Formiga, Oregon State University. "Squash and Pumpkins in Art Through the Ages"

February 8th - 12th: Indigenous Winter Foods

February 22nd - 26th: Variety Showcase Interactive Sessions

March 1st - 5th: Purple Sprouting Broccoli

March 15th - 20th: Cauliflower + Cabbage ∞

Shigemto Kato & Pioneer Farmer Rice Breeders - Origin of Modern Japanese Rice Breeding

By: Dr. Toshihiko Nishio

Translated and edited by: Shinji Kawai and Abigail Huster, Department of Horticulture, Oregon State University

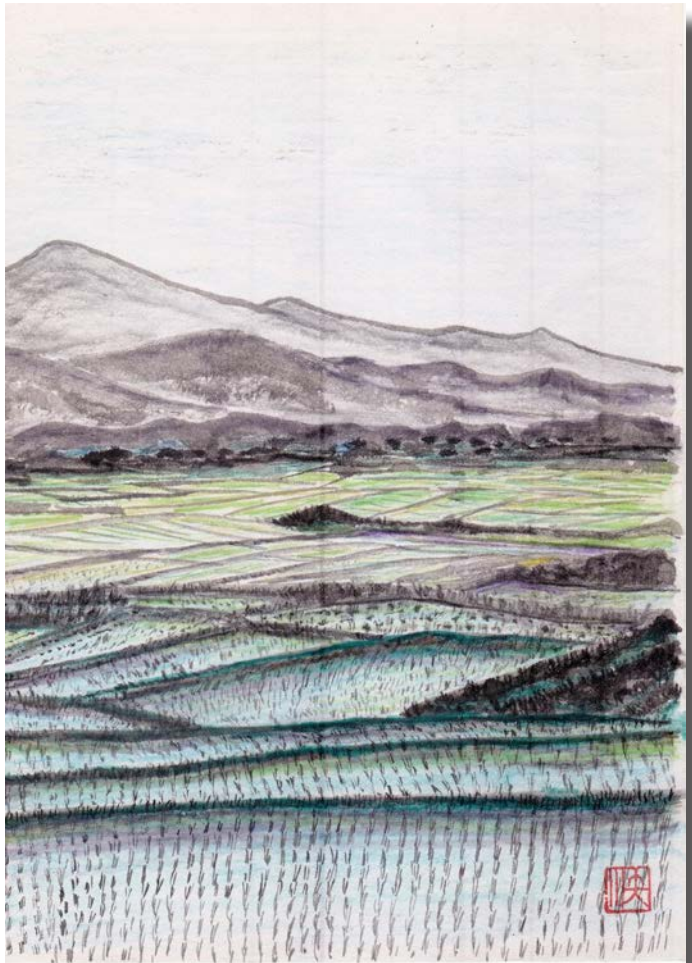
Improvements in agricultural technology and breeding helped struggling Japanese farming communities in the early 20th century. Since the 1990s, Dr. Toshihiko Nishio, a Japanese rice farming system researcher, published over 150 stories about these innovations. By showing how these discoveries derived from careful observation, patience, and in some cases, serendipity, we hope that farmers will realize how ordinary people can contribute to the advancement of their local agricultural communities and beyond.

“Since ancient times, the farmers of the Shonai region in northern Japan have always been trying to create new and improved rice cultivars. The method that they use is intriguing. To begin, they plant two cultivars of rice alternately. When both varieties start flowering, two people hold two ropes along the length of the rows and gently shake the plants. Year after year, the people of Shonai create hybrids this way and select the best resulting plants.”

These are the words of Shigetomo Kato, an important member of Japan’s Ministry of Agriculture and Commerce in the early 20th century who was originally from Shonai district. The love and respect that Kato had for his people in Shonai are evident in the way he describes their traditional plant breeding practices.

Kato is remembered as the person who initiated modern rice breeding in Japan. His breeding strategy, which is still an essential rice breeding method today, was first tested at the Kinai agricultural experiment station. This took place in 1904, four years after the rediscovery of Mendel’s Law of genetic segregation.

As Kato reported, farmers in the Shonai district have long been enthusiastic about rice breeding. Many prominent modern cultivars are traced back to the



Rice Field in the Shonai Region.
Illustration by Eiko Goto

variety ‘Kameno-o’ (Tortoise Tail) which was selected by a farmer in Shonai in the late 19th century.

The Shonai rice farmers came together and started an association of farmer-breeders to advance their goal of creating improved rice cultivars adapted to their region. When modern rice breeding efforts began, the farmers’ association would use their connection with Kato to invite expert instructors to visit and share their knowledge. The association would also send its leader, Junji Sato, and other members to the Kinai

agricultural experiment station to receive further training.

Sato and his colleagues learned the tedious work of doing crosses in a hot greenhouse, where pollen of the male parent is placed on to the individual pistils of the mother plants. They were also taught how to apply Mendel's Laws in the selection process and other cutting edge scientific concepts.

The farmer-breeders put what they learned to use in a two-step breeding strategy. They began with the selection of superior breeding lines, which were used to create hybrids. The hybrid seeds were then distributed to the farming team, who conducted field trials and further selected strains well suited to the area.

The association's efforts resulted in several important rice cultivars. The group's variety 'Fukubozu' (Happy Monk) became popular in the south-central part of northern Japan, Tohoku. Its planting acreage reached up to 68,000 ha in 1939. Another of their varieties, 'Okuni-wase' (Great Nation Early), was spread through Yamagata and Akita regions, and became a recommended cultivar by the regional Departments of Agriculture.


A unique cultivar developed by the association's breeding program was 'Hinomaru' (the Rising

Sun), bred by Kichirobei Kudo. This variety was an innovative hybrid between Japanese and Italian strains, resulting in a less fertilizer requirement than traditional Japanese types. Although different fertilizer practice required than the rice varieties previously available, growers embraced the opportunity and 'Hinomaru' reached a peak planting of 36,000 ha while fertilizer was in short supply in the post WWII period.

The skill level of these farmer-breeders is demonstrated in this excerpt from Kato's diary:

"We visited an agricultural experiment station in Koriyama... and observed the way they practiced the crossing scheme. However, there was not much to learn, so we quickly headed back home."

This might seem like a harsh evaluation of that experiment station, but it shows that the farmer-breeders were already working at a high level of expertise.

In recent years most Japanese rice cultivars have been bred by public research institutes. However, we should remember that these modern cultivars were created by building on the work of dedicated independent farmer-breeders. 

Rogue Farm Corps Changing Hands Workshop Series Register Now

Farmers, ranchers, foresters, and family members are asking themselves: how will I pass my land on to the next generation? Meanwhile, beginning farmers and ranchers wonder how they can access and afford farmland.

The Changing Hands Workshop Series aims to address these questions by convening four weeks of workshops covering business planning, agricultural loans, farm/ranch transition, finding land, and stories from farmers & ranchers who made it work. Classes are hands-on, practical, and ag-specific. Participants will leave with actionable steps, draft plans, and templates to start, build, or transition their farm or ranch business. Register at <https://www.roguefarmcorps.org/changinghands/workshops>

Rogue Farm Corps is a statewide organization that trains and equips the next generation of farmers and ranchers through hands-on educational programs and the preservation of farmland.

Envisioning an Oregon Food Charter: Black, Indigenous, Latinx, Immigrant, & Refugee Perspectives

By: Katy Giombolini, Oregon Food Bank, and Lauren Gwin, OSU Center for Small Farms & Community Food Systems

What are the top priorities for Oregon's Community Food Systems movement? Whose voices need to be heard?

In 2020, the COVID-19 pandemic exposed a broader public to the long-standing racial and social inequities in the food system. We also saw clearly how essential it is for communities most affected by those inequities to lead and influence food system transformation.

On November 17 and 18, the Oregon Community Food Systems Network kicked off its Oregon Food Charter project with an event that put those communities' voices front and center. (What's a Food Charter? Read on.)

The event featured five panels with 19 speakers representing 16 organizations led by and/or focused on Black, Indigenous, Latinx, immigrant, and refugee communities in Oregon. Most, but not all, of these organizations are current OCFSN members.

More than 200 people attended the event over the two days and were inspired by presentations, videos, conversations, and storytelling.

OCFSN, established in 2015, has long planned to lead the creation of an Oregon Food Charter. The Network is a collaboration of 56 nonprofit organizations and allies dedicated to strengthening local and regional food systems to deliver better economic, social, health and environmental outcomes across the state (learn more: <http://ocfsn.net/>).

A Food Charter sets out a collaborative vision – and a roadmap to get there – of a more just and environmentally and economically resilient regional food system. By “food system,” we mean the complex, interconnected web of activities, people, policies, natural resources, and so much else that has to come

together for human nourishment. Food Charters have been created in different parts of the U.S. to motivate collaborative, cross-sector change.

The Oregon Food Charter process aims to lead with equity. In 2018, OCFSN wrote an equity statement acknowledging that our food system is built and maintained on a foundation of oppression and systemic racism of Black, Indigenous peoples, people of color, and immigrants. We also recognize a clear need to ensure that communities of color — who have long been at the forefront of organizing for change in food systems — are centered in our efforts. That means shifting resources, decision making, and power to communities we have historically marginalized.

Since writing that statement, OCFSN has been working at multiple levels to put this commitment into practical action through our network's practices, working group focus areas, member representation, and individual and organizational trainings and education.

The Food Charter Project is part of this work. We know an Oregon Food Charter will not be successful unless it is shaped and led by the communities most affected by the inequities in the food system.

OCFSN received funding from Meyer Memorial Trust to learn from Indigenous, Black, Latinx, and Immigrant and Refugee communities about their visions for transforming the food system in Oregon. The Food Charter team originally planned to travel the state conducting on-site visits and interviews to gather these visions but shifted to an online format because of the pandemic.

For the online event, we asked OCFSN members led by or significantly focused on these communities a set of big questions:

1. What is your community's vision for Oregon's food system?
2. What stands in your way, and what solutions are you working on now?
3. What other solutions do you want to work on in the future?
4. In what ways can the community food systems movement in Oregon support your solutions?
5. What do you think are the top priorities the Community Food Systems movement should focus on?

We invited them to share their answers to any and all, in whatever format they chose. The resulting panels were an engaging, powerful mix of perspectives, big ideas, specific strategies, and calls to action.

Network members and working groups are now reflecting on what they learned, and the Food Charter team is now circling back with our presenters for their own reflections on the event and how OCFSN can use the Charter to support their organizations and a larger, collaborative movement. This is a long process – stay tuned.

For now, you can watch the recorded presentations at the links below. Presenter bios are listed on this page: <http://ocfsn.net/panelist-bios/>.

Oregon Food Charter Presentations Tuesday, November 17th

Welcome and Opening – [Recording here](#)

Panel 1 – [Recording here](#)

- Rob Cato and Beatriz Gutierrez, Zenger Farm
- Lynn Ketch, Rockwood Food System Collaborative
- Vanessa Chambers, Grandma's Hands
- Adam Kohl, Outgrowing Hunger

Panel 2 – [Recording here](#)

- Joel Pelayo, The Next Door Inc/RAICES
- Kathy Kentta-Robinson, Confederated

Tribes of Siletz Indians

- Jennie Brixey, Native American Youth and Family Center

Panel 3 – [Recording here](#)

- Jaime Arredondo and Javier Lara, CAPACES Leadership Institute and Anahuac
- Edward Hill, Black Food Sovereignty Coalition

Wednesday, November 18th

Welcome – [Recording here](#)

Panel 4 – [Recording here](#)

- Kaely Summers and Daniela Perez, Adelante Mujeres
- Shantae Johnson, Mudbone Grown
- Buck Jones, Columbia River Intertribal Fish Commission

Panel 5 – [Recording here](#)

- Laura Galindo, PCUN
- Rebeca Marquez, Familias en Acción
- Rima Green and Rashae Burns, Growing Gardens

Oregon Food Bank and the OSU Center for Small Farms & Community Food Systems provide “backbone” support for the Oregon Community Food Systems Network. OCFSN is an independent network which will soon be a nonprofit, 501c3 organization. Learn more at <http://ocfsn.net/>.

OSU Organic Extension Program Update

By: Nick Andrews, Oregon State University Small Farms Program

OSU Extension and Oregon Tilth, Inc. have been working together since 2017 to develop a new Organic Extension Program at OSU. The nascent program started in 2018 with one half-time Organic Vegetable Extension position. Friends of Family Farmers, the Oregon Organic Coalition, and Organic Valley, wanting to build the program, asked Oregon lawmakers to fund the new Extension program and this legislative advocacy was rewarded on June 26, 2019 when House Bill 5050 passed. The legislation mandated funding for two additional Organic Extension positions.

A group of Organic farming stakeholders met with OSU administrators and decided to start the program with one Organic Vegetable and one Organic Pasture and Forages Extension position. Both are full-time Professor of Practice faculty with field-based positions. They will be part of the OSU Center for Small Farms and Community Food Systems, but will work with organic farms of all sizes around the state. In January, 2020, I accepted the Organic Vegetable position, the Organic Pasture and Forages position is currently being filled.

In 2019, OSU Extension formed an Organic Extension working group, an interdisciplinary team of OSU faculty and staff who are interested in working with organic farmers. That April we hosted the Organic Extension Summit at the OSU North Willamette Research and Extension Center along with industry stakeholders and identified some promising areas of collaboration. In 2020, we launched the OSU Organic Agriculture website, which highlights organic agriculture resources, OSU faculty who are interested in working with organic farmers, and some current organic agriculture projects at OSU.

Since 2017, Oregon Tilth has provided invaluable financial assistance to secure

these positions and are continuing their support with the goal of forming a third Organic Grains and Pulses position. Oregon Tilth, Friends of Family Farmers, the Oregon Organic Coalition, and Organic Valley will also continue to advocate for additional Organic Extension funds from the state.

The Oregon Organic Coalition is leading an organic stakeholder work group to develop an Oregon Organic Action Plan that will identify strategic ways to further strengthen the organic sector in Oregon. The stakeholder work group includes representatives from across the organic sector. The Action Plan includes policy proposals for the upcoming 2021 legislative session, as well as recommendations for long-term public, private and non-profit actions to support and grow organic agriculture and business activities in Oregon. The goal with this plan will be to develop a roadmap for more fully leveraging the economic, environmental and health benefits of organics. ∞



DRY FARMING
COLLABORATIVE
WINTER MEETING

SAVE THE DATE

February 25th
2021

For more information and registration visit:
<https://smallfarms.oregonstate.edu/smallfarms/dry-farming>

Western Cover Crops Council Works To Increase Cover Cropping In The Western US

By: Nick Andrews, Tracy Wilson and Clare Sullivan, Oregon State University, Small Farms Program

In May 2018, Grassland Oregon hosted a cover crop tour and conference with guests from Cover Crops Councils around the U.S., and Oregon seed distributors, farmers, Extension, Conservationists and others. Discussions during the event led to the formation of an ad hoc group that decided to form a Western Cover Crops Council (WCCC). The group developed bylaws and an outreach listserv, and secured grant funding for some initial projects. In November 2019, they elected a Board of Directors and in March, 2020 the Board elected four officers.

The mission of the Western Cover Crops Council is to facilitate and enhance communication and collaboration that promotes the successful adoption and integration of cover cropping into Western U.S. agricultural systems.

The WCCC is the newest Cover Crops Council in the U.S. The Midwest Council was the first to form in 2006, followed by the Northeast in 2016, and the South in 2017. The western region is by far the largest and most diverse of all these regions with climates ranging from arctic to tropical and nearly everything in between. The Board decided to form regional committees (figure 1) so that the WCCC can provide locally relevant information for farmers and other agricultural professionals who are interested in cover crop adoption, education and research.

In December, 2020 we launched the WCCC website, where you can find contact information for the Board of Directors, names of the Regional Committee members, cover crop resources, and an events calendar. In 2021 with funding from Western SARE, the WCCC is hosting a series

of sub-regional cover crop webinars. The Pacific Northwest series will be on Tuesdays from noon to 1:30pm (Pacific Time) on February 16 and 23, and March 2, 9 and 16. Speakers will present results from a recent western region cover crops survey, discuss current cover crop research, provide updates from the cover crop seed industry.

The March 16 event will be a Zoom meeting with break-out groups to explore emerging themes in cover crop research, education, adoption and policy. Detailed agendas and registration information will be available on the WCCC events calendar at <https://westerncovercrops.org/events-and-webinars/>.

To stay informed on future WCCC activities, sign up for updates at <https://westerncovercrops.org/contact/>.

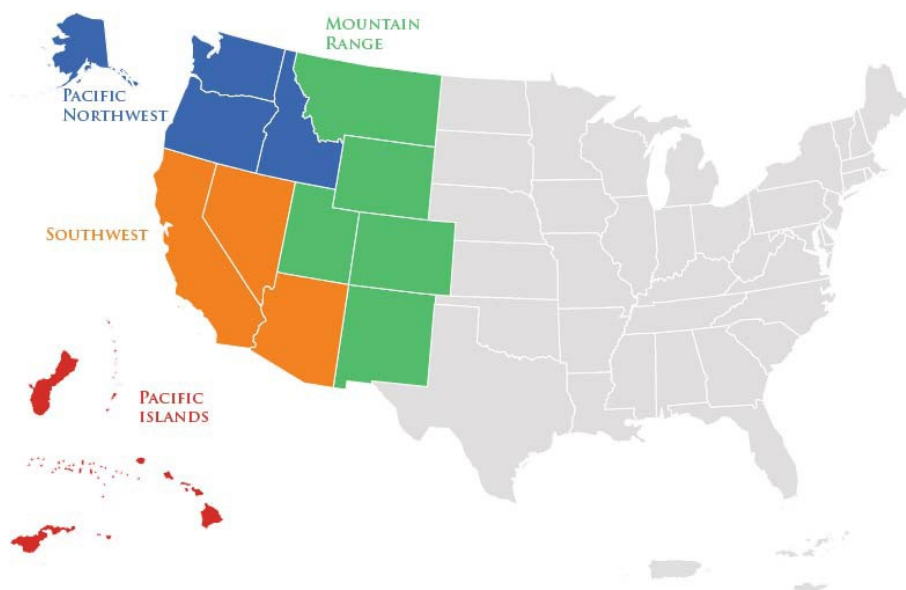


Figure 1. The four regional committees include Mountain Range (green: Colorado, Montana, New Mexico, Utah, and Wyoming), Pacific Islands (red: American Samoa, Northern Mariana Islands, Guam, Federated States of Micronesia, and Hawaii), Southwest (orange: Arizona, California, and Nevada), and Pacific Northwest (blue: Alaska, Idaho, Oregon, and Washington).

Land Transfers Need Technical Assistance

By: Natalie Danielson, Friends of Family Farmers; Sarah Vaile, Farm Commons; Ashley Rood, Oregon Climate & Agriculture Network; and Megan Fehrman, Oregon Community Food Systems Network's Beginning Farmer & Rancher Working Group

Farm transfers are tough. There's an emotional connection to the land and to growing food that adds a deep layer of complexity to the challenge of passing on a small business. The average age of farmers in Oregon is 60, yet over 80% of Oregon's farmers don't have a succession plan for their farm. At the same time, finding and accessing farmland creates a significant challenge for beginning farmers and ranchers who are not positioned to inherit family land. The future of Oregon's farms and food system depends on finding successful ways of passing land on to the next generation.

Guided by successful models in other states and the variety of expertise on our collaborative team, Oregon Community Food Systems Network's Beginning Farmers and Ranchers Working Group launched a year-long pilot program in the fall of 2019 aimed at addressing the need for more technical assistance for land transition and in accessing land. What better way to explore and understand the type and depth of technical assistance required than working closely with real farmers and landholders?

Despite a short application period, there was a solid response of sixty applicants and after an interview process, the final candidates were chosen. The goal was to understand the full spectrum of technical assistance needed to serve both young farmers looking for farmland as well as retiring farmers looking for a new farmer for their land.

Over the past year, Advisory Committee members spent hours providing assistance on all aspects of farmland transition, including help searching for land, reaching out to interested new farmers, securing financing, developing business plans and agreements, writing leases, and other legal aspects around leasing and purchasing land and succession planning. The chosen participants have been busy clarifying their vision for their farm, actively engaging in discussions with potential matches and communicating regularly and openly with the Advisory Committee about their needs as they go through this arduous process.

By the end of the Pilot Project, the selected Land Holders in Dufur had successfully found a young couple to live on their property and lease the second house and farmable acreage to develop a business of their own. Both parties received consultation and assistance in setting up the lease and working through their agreements.

The trio of Land Seekers (two sisters and a partner) hold onto their vision to run a diversified farm including flowers, seed, and raising livestock while stewarding the land through responsible land management. They believe in the important work of growing good food for our communities and would love to work with a landowner who shares this sentiment and desire to keep their land in agriculture. They are currently still looking for the 'right' piece of land in a few areas of Oregon while having put their business plan and operating agreements together,



Left: Land Seekers

Right: Land Holders

Photos provided by Megan Fehrman



and are working with Northwest Farm Credit on farm financing options.

Together, this group of land holders, land seekers, and agricultural service providers are discovering what a comprehensive land connection program in Oregon might look like so that we can ensure a solid future for agriculture in Oregon. Organizational partners are currently coming together to assess what was learned from the Pilot Project and looking at next steps to design and develop a more robust program for our state.

Project partners include the Oregon Community Food System Network, Farm Commons, Friends of Family Farmers, Rogue Farm Corps, Oregon Agricultural Trust, the Headwaters Incubator Program, Ecotrust, Oregon Food Bank, Oregon Climate & Agriculture Network, and the Oregon State University Center for Small Farms & Community Food Systems. For more information, please visit [Oregon Farm Link](#), the [Oregon Community Food Systems Network](#), or email farmlink@friendsoffamilyfarmers.org for more details.

New Cromptime Extension Publication Available Soon

By Nick Andrews, Len Coop, Heather Stoven, Heidi Noordijk and Aaron Heinrich

The OSU Cromptime Project is publishing a new Extension Publication: ***Vegetable Degree-Day Models: An Introduction for Farmers and Gardeners*** (EM 9305) that will be available online soon at <https://catalog.extension.oregonstate.edu/em9305>, and on the Cromptime website at <https://smallfarms.oregonstate.edu/cromptime>. It describes the research foundation for degree-day (DD) models, and explains how DDs are calculated. The publication also discusses how DD models can be used to predict vegetable harvest dates, and the development of viable seed in some summer annual weed species. The online Cromptime DD Calculator and mobile app is also introduced with brief instructions. We explain the modeling methods used to develop Cromptime DD models, and show how to evaluate their accuracy, and adapt them for use in regions with different climates from the Willamette Valley.

On your farm you can use Cromptime vegetable variety models in the winter and spring to schedule planting dates and plan for successive harvests that avoid gaps or gluts in supplies during the harvest season. These early season predictions are derived from long-term forecasts that are based on climate models or historical weather data from your location. During the season you can run the models again to get more accurate harvest predictions because the long term forecast data is replaced by actual weather data from your farm. The weed models can help you predict whether certain weed species will set viable seed before crop harvest. If so, an investment in late season rogueing may be justified in order to prevent weed seed rain in your field.

Time to maturity or harvest may be influenced by many factors including time, temperature, sunlight, moisture, pest pressure and soil fertility. Time and temperature are usually the two most important factors. Our hypothesis is that DD models that calculate time and cumulative temperature are more accurate than maturity estimates based on calendar days alone. Figure 1 illustrates the range in days to maturity of Arcadia broccoli in five growing seasons in Aurora, Oregon and at four different planting dates, as predicted by the Cromptime DD model. Days to maturity ranged from 66 to 103 days across all planting dates. There were 20 to 32 days difference in the time to maturity within one growing season, depending on the planting date, and 0 to 14 days difference in time to maturity at the same planting date in different seasons.

The Appendix describes key growth stages and DD model parameters for the vegetable varieties and weed species that have been modeled so far. These include:

- Four transplanted broccoli varieties: Arcadia, Emerald Pride, Green Magic and Imperial
- Six direct-seeded and one transplanted cucumber varieties: transplanted and direct-seeded Marketmore 76, and direct-seeded Cobra, Dasher II, Extreme, Supremo and Zapata
- Three direct-seeded snap bean varieties: 5360, Provider and Sahara
- Six direct-seeded and three transplanted sweet corn varieties: transplanted and direct-seeded Luscious, Sugar Pearl and Temptation, and direct-seeded Jubilee, 4001 and Kokanee
- Four transplanted sweet pepper varieties: Bell King, Gatherer's Gold, King Arthur and Stocky Red Roaster
- Four transplanted tomato varieties: Big Beef, Indigo Rose, Monica and New Girl
- Three summer annual weed species: Hairy nightshade, Lambsquarter and Redroot pigweed

Our team is continuing our modeling efforts and expects to develop new DD models for spinach, lettuce, carrot, parsnip, cauliflower, cabbage, kale, and summer squash varieties in the future.

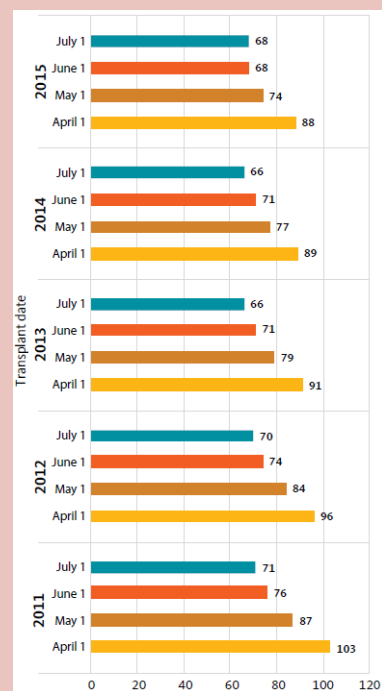


Figure 1. Predicted days to maturity for Arcadia broccoli from 2011-2015 when transplanted on April 1 (yellow), May 1 (gold), June 1 (orange), and July 1 (blue) calculated with the Cromptime model for Arcadia broccoli. 2011 and 2012 were cooler years, and 2013, 2014 and 2015 were warmer years.

Fodder for Forage: Fact, Folly, Fable or Fabulous?

By: By Susan Kerr, WSU Northwest Regional Livestock and Dairy Extension Specialist; Lorrie Conway, Conway Family Farms; Ashley Conway, WSU Animal Science Graduate Student

Photos provided by the authors unless noted

This article was originally published in our Winter 2014 Oregon Small Farm News. We are reprinting it with some updated examples.

If you wait long enough, everything old becomes new again. Lately, it seems you can't open a livestock magazine without seeing an article about fodder. The actual definition of fodder is simply "food fed to livestock". Current discussion about fodder focuses on feeding spouted grain (usually barley) to livestock and poultry.

Feeding sprouted grain to livestock is hardly a new concept. In the 1800s, European dairy farmers fed sprouted grains to their cows during winter to maintain milk production and improve fertility. Similar methods were probably practiced centuries before that.

Why is there so much talk about fodder lately? What are the benefits, detriments, challenges and costs to producing and feeding fodder? Shaun and Lorrie Conway of Conway Family Farm have been growing



Photo 2: Eight days of production (four trays per row, two trays per day).



Photo 1: The entire system in greenhouse.

and feeding hydroponic fodder to the livestock on their five-acre farm in Camas, WA for about nine months. During a recent interview, Lorrie addressed many questions about their experience with fodder; this article is a product of that interview. It is the authors' hope that interested readers will use this information to make sound decisions about incorporating fodder into their livestock feeding operations.

SK: Why did you start growing and feeding fodder?

LC: To create some independence from relying on outside feed sources, to save costs, to be able to feed our animals fresh "pasture" daily and to create a more sustainable farm on limited land base.

SK: How much time do you spend on a daily basis harvesting fodder and caring for your fodder system?

LC: We are only feeding fodder once a day because of limited time. Cleaning, seeding, harvesting and feeding takes approximately 20-30 minutes per day for our flock/herd of about 30 sheep and goats.

SK: What equipment and facilities do you need?

LC: Our system is in a heated greenhouse. You could use any type of shelter, garage, basement or room where you can control the temperature and humidity. Our system is constructed using a metal racking system and 12' X 9" hydroponic flood and drain trays. We have equipped our system with an automatic watering system and timer to ensure the sprouted seeds stay moist. We purchased a complete system from a dealer (Photos 1 and 2), but you could make your own.



Left - Photo 3. Seeds in soaking bags.

Center - Photo 4. Seeding on Day 0.

Right - Photo 5. Day 2

SK: Would you recommend make-your-own systems or purchasing commercial systems?

LC: I think we would have made many mistakes if we built our own system right off the bat. It certainly wouldn't be difficult to build, but I think we would have failed to leave enough working space between trays and perhaps would not have set it up as efficiently. The system we purchased provided virtually everything we needed to get up and going. Because we were not familiar with hydroponic growing systems, this proved to be a huge time saver for us. Could you figure out how to do it on your own and save some money? Absolutely. Does the commercial system make it easy to get up and running quickly? Absolutely. It really depends on what your goal is.

SK: What seeds are you using, where do you get them and how do you handle them?

LC: We use feed barley. We hope to explore other types of sprouts in the future, but due to accessibility and cost, we have only used barley so far. We get the seed from the mill that supplies us with our grain rations.

We did try one bag of seed barley which was REALLY expensive and didn't notice much difference in germination. If you use seed barley, you have to be sure not to use treated seed for fodder. The least expensive approach might be to purchase feed barley

directly from a producer if you live near one and they are set up for storage and sales. We realize our seed cost is high because we are paying a premium for convenience due to purchasing a few 80# bags vs. several tons at one time, but we just don't have storage for or machinery to move one-ton totes.

We soak nine pounds of barley per tray in untreated water for 8 hours before spreading out in trays (Photos 3 and 4). We only provide water after that, no additional nutrients (Photos 5 and 6).

SK: What are the growing conditions and requirements?

LC: We have found the ideal growing conditions to be 60-65°F and 60-75% humidity. The sprouts grow more slowly below that range and we battle mold issues at higher temperature and humidity.

SK: What challenges you have encountered?

LC: The biggest problem has been with controlling



Photo 6. Day 3



Photo 7. Cleaning trays.



Photo 8. Harvesting on Day 8.

mold. It has been very difficult to control or adjust the humidity in the greenhouse environment. This became especially difficult during the summer months when we experienced longer stretches of really warm days. We have installed manual and automatic fans to help with humidity and air circulation. There is a “dead” corner that is always a challenge to regulate and the growth there is less than optimal.

Another challenge has been purely the logistics and additional work involved. This is a just-in-time inventory system. You can’t skip a day or eight days later you won’t have any fodder. This approach isn’t for everyone.

As a small woman, is difficult to seed, harvest and clean the racks because of height—the racks are stacked closely for maximum space efficiency. We considered dropping the space between the trays to get the top racks lower, but then you have reduced

your working space between trays, which you really need (Photo 7). We are trying to address this issue.

Initially we had some problems with uneven growth and sour sprouts on the end where the system didn’t drain well. We adjusted the racks to improve drainage and installed shelf boards under the trays to minimize tray sag.

With the recent cold snap in the weather, we are running really slowly on growth. The greenhouse heater has been working overtime, but we are about three days behind on our normal growth cycle.

SK: How do you feed fodder to your goats and sheep?

LC: This is a very wet feed, so it can be challenging to harvest, transport and feed. One roll (one-half of a tray) weighs about 26 pounds and we feed two complete trays per feeding to our sheep and goats



Photo 9. Meals on wheels: fodder rolls in wheelbarrow ready to be fed.



Photo 10. Happy fodder feeders.

combined. The sprout mats simply roll up (Photo 8) during harvesting and are transported in a wagon (Photo 9) a short distance to the barns where the animals are fed. We roll the fodder out in their hay bunks; the sheep seem to eat it just as they would



Photo 11. Fodder is fun food!

graze grass (Photo 10). They consume the entire mat including sprouted roots. The goats have been a bit more challenging--goats will be goats and the fodder feed is fun for them to eat. They like to flip it around and play with it rather than just eating it (Photo 11). We have to tear it into small pieces for the goats to minimize waste. We think a trough system would be more effective than the bunker-style feeder for the goats so we are developing one.

SK: In your experience, what are the benefits and limitations of feeding fodder?

LC: The main benefit for us is being able to be more in control of our feed source. We are still reliant on a seed source and we still augment with dry feed (alfalfa and grass), but we have reduced our dependence on outside feed sources by approximately one third. Additionally, we are able to feed beautiful fresh grass every day (Photo 12). The animals love it and seem to maintain well on it. Because we've only been doing this about nine months, we won't have worked through all the financial aspects until we complete this winter season, but it appears to be a cost savings of about one third as well.

SK: What financial analyses can you share at this point?

LC: It looks like we are running about \$103/ton of fodder as fed, which includes seven years depreciation on the hydroponic system, but does not include depreciation on the greenhouse. I anticipate that number could go up as high

Photo 13. Day 7, almost ready for harvest.



Photo 12. Six inches of "pasture" ready to eat!

as \$110/ton by the end of the winter due to energy costs to heat the greenhouse with electricity and propane.

SK: Are you pleased with your system? Is it accomplishing what you wanted it to do?

LC: We knew this would augment our feeding program, not replace it. Yes, the system is creating a wonderful fresh augmentation to the animals' diets. Everything we read indicated this would provide an equivalent nutritional value as dairy quality alfalfa hay; however, our does have decreased in milk production. At this point we aren't convinced the fodder provides the same level of milk production efficiency as good dairy quality alfalfa hay does, but then again, there is the question of availability and cost. With the reduced cost of fodder, we can afford to lose a bit in production and still stay profitable. I can't



say we have all the bugs worked out or our feeding program perfected yet. I feel we are still in the infancy stages of this process, but I do think the overall, this is a good option for our particular operation. It isn't for everyone. It is work! It would be a tremendous amount of work if you had a large number of animals, but it is also good feed and it is very gratifying being able to grow that for our animals--an option we have never had on such a tiny farm.

SK: What are your recommendations for producers interested in doing fodder?

LC: I would suggest “over-buying” or “over-building” your system—build in more capacity than you think you will need. Production varies depending on time of year and weather. Most of the rates of production we read about were yields from ideal conditions. From what we are experiencing, maintaining ideal conditions year around can be challenging.

I would also suggest visiting a farm that is using a hydroponic system and discuss the challenges and benefits. Take a good look at the system and decide if it is something you would like to build. I think many of these systems are still in the early stages of being perfected, so they are changing rapidly based on users’ feedback. Make certain you are willing to work with whatever you decide to put in to perfect it for your operation. I don’t think these systems will work the same for everyone so make sure you educate yourself and don’t have unrealistic expectations.

I will say it is the most remarkable thing in the world to get the system up and going and literally to be able to watch the grass grow (Photo 13)! I would also suggest working with a ruminant nutritionist to make certain you have formulated a feeding plan that uses fodder as an augmentation. The animals still require roughage, so I wouldn’t suggest this is going to be a complete diet replacement.

SK: Before deciding to invest in fodder system, it is essential to put pencil to paper and determine your costs. Table 1 below is useful for determining production costs; an example is included. Individual farm costs could be significantly higher or lower than the example shown depending on fodder system purchased, cost of seed, energy costs, cost of greenhouse and whether or not labor costs are incorporated.

To compare the cost of home grown, as-fed fodder and purchased hay as forage sources, it is necessary to make them comparable on a dry basis because water contains no additional nutrients and we can provide it more inexpensively directly. In other words, we may have grown a ton of fodder, but most of the weight is water. Table 2 below shows the nutritional content of two different samples of seven-day sprouted barley fodder and one alfalfa hay sample—note the high water content of the as-fed fodder.

We’ll use the average of the two fodder sample moisture contents (85%) for our calculations. To compare this with as fed 14.4% moisture hay, we’ll

Table 1. Determining Fodder Production Costs

Factor	Example costs per ton of fodder as fed	Your costs
Seed*	\$76.15	
Labor*	\$45	
Fuel and energy**	\$30	
Water	\$10	
Depreciation on fodder system* (7 yr.)	\$16.23	
Depreciation on greenhouse or sprouting room** (20 yr.)	\$6.30	
Equipment (scales, wheelbarrows, seed spreaders, buckets, fans, stepladder, etc., 7 yr. depreciation)	\$0.25	
Total cost per ton of fodder, as fed	\$183.93	

~Seed costs can vary greatly depending on market fluctuations, source, amount purchased and custom orders
*Obtaining seed, seeding, harvesting, feeding, cleaning
**Heating sprouting room, fuel to obtain seed and feed livestock
*Fodder systems can range from \$3,000 to \$15,000 or more
**Greenhouses can range from \$500 to \$10,000 or more

Table 2. Chemical analyses of two different seven-day-old samples of spouted barley and one sample of first cutting alfalfa hay. As fed values in left cell and dry matter values in right cell for each component.

	Nutritional Analysis													
	% Dry matter		% Water		% Crude Protein		% Acid Detergent Fiber		% Neutral Detergent Fiber		Estimated % Total Digestible Nutrients		Net Energy of lactation (mcals/lb)	
Fodder sample 1	16.23	100	83.77	0	1.68	10.38	1.54	9.46	3.79	23.34	12.71	78.29	0.13	0.82
Fodder sample 2	13.85	100	86.15	0	1.93	13.92	2.19	15.83	4.56	32.91	10.55	76.19	0.11	0.79
1* cutting alfalfa hay	85.60	100	14.40	0	19.8	23.20	27	31.50	31.1	36.40	55.60	64.90	0.57	0.67

*Relative feed value (RFV) helps compare the energy value of different forages. It reflects digestibility and potential intake. The standard of 100 is mature alfalfa in full bloom

convert them both to a 100% dry matter basis, factor in the cost per ton as fed and extrapolate the cost to one ton of dry matter:

Forage	As fed water	Dry matter	Dry matter per ton as fed	As fed amount needed for one ton of dry matter*	Cost per ton as fed	Cost of one ton of dry matter**
Home grown fodder	85.0%	15.0%	300 lb.	13,340	\$183.93	\$,1226.81
Purchased alfalfa hay	14.4%	85.6%	1,712 lb.	2,336	\$225.00	\$ 262.80

*(2,000 lbs. ÷ DM lbs. per ton as fed) x 2,000 lbs.
 **(2,000 lbs. ÷ DM lbs. per ton as fed) x cost per pound as fed

Conclusions

Sprouted grain fodder systems are not new to livestock production systems, but rising feed costs, reduced agricultural land, demand for organic forage and other factors have caused them to become popular again. Start-up costs, labor, production challenges and economics make them of dubious application for most livestock operations. However, present an opportunity for selected producers to gain control over some aspects of their forage needs and ensure a steady and consistent supply of highly-digestible forage. Organic producers, those on limited acreage, those with insufficient forage storage capacity and those with too little or too much precipitation to make good hay may benefit from fodder systems. Feeding fodder to animals on dry lots may also help break internal parasite cycles when pasture management best practices are not possible. However, it is crucial that producers interested in fodder systems understand the labor, difficulties and actual cost of production involved before committing valuable resources to such systems. 🐄

More Reading

www.sheepandgoat.com/articles/hydrofodder.html
www.qcl.farmonline.com.au/files/48/20/01/000012048/Hydroponicfodder.pdf
www.agmardt.org.nz/downloads/AIG%20%28Grant%201122%29%20Merino%20NZ%20-%20Hydroponic%20Fodder%20Production.pdf
http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1829&context=ans_air

Beef Cow Example

A 1200# beef cow requires about 24# of dry matter daily (2% of body weight).

One cow would need about 160# of fodder (15% dry matter) every day to meet her dry matter requirements.

Nine pounds of barley seed produces about 52# of fodder, so over 18# of seed would need to be growing for every cow, every day, for an 8-day growing cycle until harvest.

That means many, many trays of fodder at different stages of development every day for every cow.