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Oregon Small Farm News

Oregon State University Small Farms Program

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Cover Photo:

Black Futsu Squash, Riverland Family Farms
Photo by Garry Stephenson

Tomato Grafting for Dry-Farmed Production in Oregon

By: Alex Stone, Matt Davis, and Amy Garrett
Oregon State University

Vegetable grafting is widely practiced worldwide as a soilborne disease management strategy, with disease susceptible varieties grafted onto disease resistant rootstocks. This practice was first documented in Japan in the 1920s, with watermelons grafted onto squash rootstock (Kubota, 2016). Grafting of vegetables has not been widely practiced in the US until recently due to readily-available and cost-effective soil fumigants and the high labor costs associated with grafting; a growing interest in non-chemical soilborne disease control strategies and mechanization of the grafting process is expanding grafting interest and adoption in the US.

Vegetable grafting to improve drought and heat tolerance (climate resilience) is an emerging research area. In 2019, the OSU Vegetable Program/Stone laboratory, in partnership with the Small Farms Dry Farm Program, first compared Early Girl tomato grafted onto Fortamino rootstock with ungrafted Early Girl (WSARE project "Enhancing Vegetable Farm Resilience through Dryland Production"). Grafted Early Girl plants were less drought-stressed than ungrafted plants, and fruit yield and size were higher and blossom end rot incidence lower on grafted plants than on ungrafted plants. These results suggested that grafting is a promising strategy to improve dry farmed tomato productivity in the Willamette Valley.

Tomato Presentation at the Dry Farm Field Day
Photo by Kelly Andrus

The WSARE project "Production and Marketing of Dry-farmed Tomatoes in Oregon" began in 2020 and has trialed more than 200 tomato varieties and scion/rootstock combinations for dry farm performance. In 2020, the project found that the rootstocks Fortamino, DRO141TX, Emperador, and Maxifort improved tomato dry farm performance, while Shin Cheong Gang did not. In 2021 (a hotter and drier year than 2020 with a record-setting heat dome in late June), DRO141TX, Emperador, and Fortamino were again shown to improve dry farm performance (Tables 1 and 2), with differences between DRO141TX and Fortamino detected. Across seven scions grafted onto them both, those grafted onto Fortamino exhibited lower blossom end rot incidence and were less drought-stressed, though a significant impact on yield and fruit size was not detected. Fruit of Big Beef and BHN-871 grafted onto either Fortamino or DRO141TX remained firm despite the extreme heat in 2021, while fruit of other combinations were unacceptably soft.

Table 1: Yield and quality of ungrafted scions and scions grafted onto DRO141TX and Fortamino

Scion	Rootstock	Fruit number (fruit/acre)	Total yield (tons/acre)	Fruit size (lbs/fruit)	BER incidence (%)	Heavy BER incidence (%)[3]
Astrakhanskie (OP[1] red)	DRO141TX	174,240	51.8	0.59	3	1
	Fortamino	151,734	46.5	0.61	5	1
	None	85,958	16.5	0.38	49	39
Big Beef (F1[2] red)	DRO141TX	368,808	68.5	0.37	18	3
	Fortamino	373,164	76.3	0.41	3	1
	None	260,779	39.8	0.31	66	31
Cosmonaut Volkov (OP red)	DRO141TX	179,322	35.0	0.39	4	2
	Fortamino	171,336	39.0	0.45	0	0
	None	124,146	21.9	0.35	12	2
Marmande (OP red)	DRO141TX	374,035	50.1	0.27	0	0
	Fortamino	401,914	48.7	0.24	0	0
	None	288,077	30.0	0.21	5	2
BHN 871 (F1 orange)	DRO141TX	265,426	51.9	0.39	7	2
	Fortamino	282,269	62.2	0.44	3	1
	None	154,493	28.9	0.37	55	32
Azoychka (OP yellow)	DRO141TX	211,411	35.1	0.33	6	3
	Fortamino	279,510	52.3	0.37	2	1
	None	209,814	31.1	0.30	16	5
Baylor Paste (OP red paste)	DRO141TX	491,357	28.3	0.11	6	4
	Fortamino	762,784	52.6	0.14	3	1
	None	448,184	22.2	0.10	10	3

[1] open-pollinated
[2] hybrid
[3] necrotic lesions that lead to fruit rot

Summary
Grafting is a promising tool to improve dry-farmed tomato performance as it has the potential to reduce plant drought stress and blossom end rot incidence and increase fruit yield and size.

Big Beef and BHN-871 grafted onto either Fortamino or DRO141TX rootstocks are highly recommended for dry farm production as these scion/rootstock combinations were high performing in 2020 and 2021 and produced the greatest yield of firm unblemished fruit in the extreme 2021 heat.

Plants grafted onto Emperador rootstock can be purchased from Log House Plants, Plug Connections, and Territorial Seed Company. Currently, none of

Table 2: Yield and quality of ungrafted scions and scions grafted onto Emperador

Scion[1]	Rootstock	Fruit number (fruit/acre)	Total yield (tons/acre)	Fruit size (lbs/fruit)	BER incidence (%)	Heavy BER incidence[2] (%)*
Thorburn's Terra Cotta (OP orange)	Emperador	319,440	48.2	0.30	8	2
	None	254,390	24.4	0.19	41	20
Cherokee Carbon (F1 purple)	Emperador	201,828	43.5	0.43	2	2
	None	175,982	35.4	0.40	46	15
Cherokee Purple (OP purple)	Emperador	255,552	48.9	0.38	1	0
	None	192,826	37.2	0.39	25	4
Cuor di Bue (OP red paste)	Emperador	211,992	46.7	0.44	14	8
	None	293,885	33.8	0.23	64	47
San Marzano (OP red paste)	Emperador	707,124	39.0	0.11	24	9
	None	601,128	40.9	0.14	53	46

[1] scion/rootstock combinations commercially available from Log House Plants
[2] necrotic lesions that lead to fruit rot

Left: Big Beef Tomato and **Right:** BHN-871 Tomato
Photos by Kelly Andrus

these sources offer plants grafted onto Fortamino or DRO141TX.

Farmers can inexpensively produce grafted plants, however grafting techniques may require practice before grafting success. For more information on how to graft tomatoes, see the Introduction to Grafting Manual. Fortamino is available as organic seed from High Mowing Seed Company and DRO141TX (not available as organic seed) is available from Johnny's Selected Seeds.

Resources:

Kubota, C., C. Miles, and X. Zhao, 2016. Manual: How to produce grafted vegetable plants. Available at http://www.vegetablegrafting.org/resources/grafting-manual/

Stone and Davis, 2021. OSU dry-farmed tomato project reports. Available at https://horticulture.oregonstate.edu/article/dry-farm-tomato-production.

2022 OSU Small Farms Conference Has Gone Virtual This Year - February 18th & 19th

We are excited to announce the 21st OSU Small Farms Conference is going virtual this year.

Different from past years we will be hosting the event through the Whova platform. Sessions will be live and may contain some pre-recorded pieces. Sessions will be accessed directly from Whova with convienant Zoom links. Message boards for questions will remain live throughout the event, and we have added live conversation networking times. There will be an exhibitor showcase, and we are working to bring on as many of our past participants and new exhiboitors this year.

The registration process will be a bit different from previous years. Our fee per person will be $25 and you will not have to choose any sessions then. During the event, all sessions are open to attend, or you may start a session and decide you would rather attend another without any issues. You will recieve access to the Whova website a week or two before the conference begins.

Registration will open on Jan 1st on our website: https://beav.es/UVK

Full and partial scholarships may be available, please reach out to SmallFarmsProgram@oregonstate.edu

This is a list of sessions currently being planned for our event (more will be added to the website through January as they are finalized) . Session days and times will be announced as soon as we have the schedule finalized. All sessions will be recorded for participants to access post event for a limited time.

Stewarding resilient seeds for a hotter, drier future
Session description coming soon.

Hopi Dry Farming: 2000 Years of Resiliency
Dr. Michael Kotutwa Johnson is a member of the Hopi Tribe in Northern Arizona and received his PhD from the University of Arizona's School of Natural Resources and the Environment. Dr. Johnson is a traditional Hopi farmer and practitioner and has given extensive lectures on the topic of Hopi dryland farming – a practice of his people for over two millennia – throughout his academic and professional career.

Need to renovate your pasture? Let's talk options.
Do you have more invasive weeds than desirable forage in your pastures? Have you been thinking about replanting but not sure where to start? Pasture quality and yield can decline for many reasons, low soil fertility, soil compaction, continual overgrazing or a combination of these and others. In this session we'll discuss the planning steps you'll want to take long before planting time and different renovation options through a series of farm case studies.

Pastures in a Changing Climate
As Oregon's climate continues to change, hotter and drier summers present mounting challenges for pasture-based farms. Drawing upon his research and experiences in West Asia, New Zealand, and the Pacific Northwest, Dr. Serkan Ates of Oregon State University will discuss techniques for adapting pastures to climate change. His talk will cover the use of novel heat and drought-tolerant forages, alternative grazing and pasture management strategies, and other tools to improve pasture resilience and productivity.

The Art & Science of Pasture Finishing Ruminants [x2]
In this 90 minute session, learn how to pasture-finish ruminants (primarily beef but also sheep) for optimal gains and quality meat. We will cover how to develop a grazing plan, how to manage pasture for optimal gains, how meat quality is impacted by pasture management, and different pasture mixes for the wet and dry parts of Oregon and the Northwest.

Introductory Hydroponics [x2]
Description: Come learn about growing plants in soilless conditions. Hydroponics is a method of growing plants without soil and instead using mostly just water. We will spend the first half of our session covering the motivation and benefits of growing hydroponically. Then, after our short break, we'll spend the second half exploring the basics of nutrient and fertility management as well as matching crops to different types of hydroponic production systems. This session will be an excellent primer if you want to get your feet wet or dip your toes into the world of growing plants in water.

Adding Agritourism: Farm to Table Dinners
Farm to table dinners can be great marketing events for your farm business, but how do you go about putting one together on at your farm? Hear from experts and producers about the successes and challenges of hosting dinners on-farm and the different ways they can be organized. Learn about the legal, planning and hospitality factors that impact this on-farm event.

Adding Agritourism: On-Farm Lodging
There is a lot of hype around on-farm lodging right now, but what can you actually (and legally) do on your farm? It is important to know! This session takes a hard look at the legal restrictions as well as the other challenges associated with hosting guests overnight. Learn from experts about what is permissible on Oregon farmland and from farmers about what has worked in their counties.

What's happening with Oregon's local food hubs?
Oregon's local food hubs are connecting growers to markets in rural and urban regions around the state. Hubs also contribute to overall food system resilience. Come hear from a panel of food hub operators about how they work, what services they provide to farmers and buyers, what they need for long-term viability, and what they've learned about moving local food.

Field-to-Market: Producing & Selling Farm Direct, Processed Foods in Oregon
Session description coming soon.

Heirloom Collard Project: Growing, Seed Saving, Storytelling, and Collaboration [x2]
Session description coming soon.

Small Farms and Community Food Systems at the Oregon Legislature
Oregon's Legislature is in "short session" this year, but there is still plenty of legislation in the works that really matters to farmers and community food systems. In this session, you'll hear from a panel of farm and food system advocacy organizations about top priority bills and funding programs they are tracking.

Applied Research in Environmental Mycology (agriculture and forestry)
From agricultural fields to forest ecosystems, fungi play many relevant roles that can and should be studied further to help us achieve more sustainable lifestyles. This presentation will cover applied on-farm research and two case studies from the field of mycology. It will end with a 10 step process to designing and implementing on-farm research.

Washing and packing greens on the small farm for quality and food safety
Session description coming soon

Cover Crops for Oregon
Session description coming soon.

Western SARE: Should My Farm Apply for a grant?
This workshop session will cover the various Western SARE grants available for producers—how to come up with a project idea, create a timeline for the grant application and find a technical advisor. Two producers who have received SARE grants will share their experiences with grant writing and project management.

Registration will be $25 per person and open on Jan 1st at the conference website: https://beav.es/UVK

Keeping Livestock and Pastures Healthy Over the Winter

By: Hayley White, Oregon State University, Small Farms Program

Winter brings a chill and additional requirements for maintaining animal health. While most livestock can adapt to winter temperatures, animals that are sick, old, or young are more vulnerable to the cold. During this time animals need quality feed, access to clean water, and protection from rain and wind.

Photo by Jody Gaisford

With lower temperatures, livestock will need to consume more feed to keep warm. By feeding quality forage like grass hay or alfalfa, the fermentation process of breaking down fiber will produce body heat. If the hay isn't good quality, you will need to feed more to meet their needs. Water that is fresh and warm enough is also essential. Animals should have free access to water that is above 40°F. If the water isn't warm enough, intakes will decline. To keep the water fresh, use an automatic waterer or bring fresh water multiple times a day.

As for shelter, it can be anything from an insulated barn to a simple three-sided structure. Any design you use should have enough room for your livestock to lie down without being trampled. Having bedding material provides added protection and insulation for the animal. Use clean, dry bedding or rubber mats to insulate their body from the ground.

Recommended square feet per animal by species:	
Cows: 30	Sheep: 8
Calves: 15	Ewe w/lamb: 12
Horses: 100-150	Llama: 25-30
Goats: 10	

Pastures are also sensitive during this time. Grazing animals need to be kept off saturated pastures. Livestock will tear up the soft grass by compacting the soil and creating more mud. Over time this leads to less forage for the grazing season and more weeds. By keeping livestock off of wet pastures, you reduce damage to the roots and increase production.

To prevent a muddy, damaged pasture, create a "sacrifice area". This is a smaller area where you can keep livestock to protect your pastures. The sacrifice area should be in a convenient spot on higher ground that is level or slopes away from the barn. The ground must be well-drained and this can be achieved by installing footing material. Footing material might include or be a combination of gravel, sand, hog fuel, or filter fabric. It is recommended to put down twice as much footing material as you have mud in the winter. So, if the mud in your pen is 3 inches deep, put down at least 6 inches of material. There are pros and cons to each type of material, so be sure to research what would be best for your farm.

In a sacrifice area, manure will build up fast and needs to be removed. Standing in manure and mud can lead to foot problems and poor animal health. Furthermore, rainfall can carry bacteria and nutrients to surface water and groundwater. Store manure on high ground and cover it with a shelter or tarp. Composting manure will reduce pathogens and parasites while providing you with a rich nutrient source. Spread the compost on your pasture as fertilizer or use it in your garden!

Looking for other wet weather tips? Install gutters and downspouts on farm buildings to collect water

or divert it away from the pen. Rainfall can add up fast on roofs and create thousands of gallons of extra water. Additionally, grass buffer strips planted downslope can filter nutrients and reduce runoff.

Photo by Will Hofmann

Winter isn't the best time to create a new sacrifice area, but it is the perfect time to make a plan! Observe how water moves across your landscape, take note of heavy-use areas, and measure mud depth. Research your options and find the best footing material combination for your situation. Your animals will be healthier, pastures more productive, and the environment safer for everyone!

Agritourism Producer Survey: What would you like us to work on next?

By: Audrey Comerford, Agritourism Coordinator for Marion, Polk and Yamhill Counties

We want to hear from you! OSU Extension faculty in the Willamette Valley are conducting a needs assessment to better serve farms with agritourism and/or direct to consumer sales in their business model. Farmers and producers, this means you. Agritourism includes farm stores, U-picks, seasonal festivals, farm to table dinners, tours and classes, tastings, farm stays, on-farm nurseries, hiking and birdwatching, and more. These marketing strategies can enable an additional revenue stream, enable farm products to be sold at a higher price, help with farm succession, provide employment for additional family members, and teach the public about agriculture.

I know, it is yet another survey. But these results will directly impact the types of support and educational resources offered to agritourism operations or those that are looking to add an agritourism activity in the future. This survey was developed with the sole purpose to better understand the need for agritourism educational programing and support that may benefit your farm. Our hope is that we can hep keep family farms vibrant, strengthen local communities and support sustainable food systems.

The survey is anticipated to take 5 minutes to complete and includes questions that will assist our agritourism and small farm programs. Please go to beav.es/Uuo or use the QR code to fill out the survey. It will be open through January 31. If you have any questions about this survey or other agritourism programing, please contact Audrey Comerford at audrey.comerford@oregonstate.edu

Oregon Producers Continue to Adapt Direct to Consumer Marketing

By: Melissa Fery & Lauren Gwin, Small Farms Program, Oregon State University with Pami Monnette

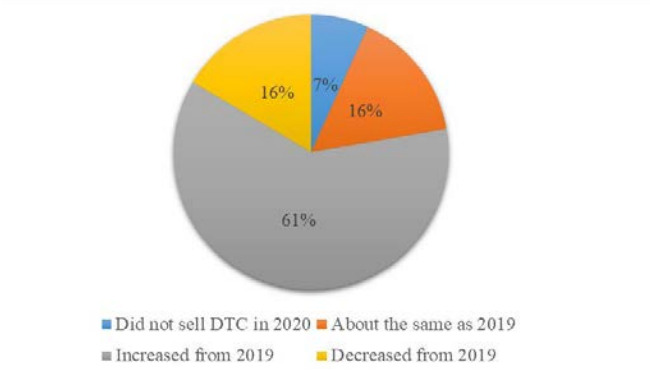
Last December, we asked agricultural producers across the state about their direct-to-consumer (DTC) marketing experiences in 2020, during the COVID-19 global pandemic, as well as their plans moving forward into 2021.

One hundred twenty-four Oregon farmers or ranchers participated in the survey. Their farming experience included beginning farmers who have been in business less than 5 years (33%), those who had been farming for more than 10 years (43%) and many in-between. Some key findings from the survey are shared below to bring awareness of marketing changes and what may be instore for the future.

Direct-to-consumer sales in 2020

One of the most important takeaways of our project was confirmation that direct-to-consumer (DTC) sales in 2020 increased from 2019 for 61% of our respondents (Figure 1).

Figure 1: 2020 DTC sales compared to 2019 (n=103)



We also asked how their use of specific DTC strategies changed from 2019 to 2020 (Table 1). Interestingly, farmers market sales increased for many but was the strategy decreased by the highest percentage of respondents as well, illustrating how variable this was. Overall, few farmers continued to market as they did in 2019. Many tried new strategies or increased how much they sold through existing strategies. This speaks strongly to their resilience: they rapidly adapted to the limitations COVID threw at them.

Table 1: Changes in DTC marketing strategies in 2020 compared to 2019 (n=85).

DTC Strategy	Began	Increased	Decreased	Did not use
On-farm pick up	14%	31%	14%	41%
Delivery by the farmer	20%	37%	9%	34%
Online sales	22%	33%	4%	41%
U-pick sales	1%	4%	9%	86%
Farm stand sales	5%	25%	9%	61%
CSA	11%	35%	2%	52%
Farmers Market	5%	35%	22%	38%
Collaborative sales with other farmers	6%	31%	5%	58%

When asked which of these DTC marketing strategies were most successful for them in 2020, they ranked delivery highest, followed by the farmers market (Table 2).

Table 2: Respondents' most successful marketing strategy in 2020 (n=84).

DTC Strategy	% of respondents
Delivery by farmer	21%
Farmers market	19%
Online sales	15%
CSA	18%
Farm stands	13%
On farm pick-up	7%
Collaborative sales	4%
U-pick	2%

Plans for DTC sales in 2021 (and beyond?)
We also asked producers about their plans for 2021, if they would start, continue, increase, or decrease specific direct marketing strategies. Sixty-two percent said they would continue on-farm pick-up, 59% said they would continue delivery, and 40% said they would continue online sales. Of these, only delivery is surprising, given the cost to farmers for providing that service. The emergency of COVID could have made those costs worth absorbing in 2020, when more consumers could or would not leave home. Farmers may be charging for delivery or found other benefits that justify the cost. While online sales can also be costly in time, especially for start-up, the fact that so many respondents plan to continue or expand this suggests that once COVID forced them to try it, they found it useful.

Producer priorities for support
When asked what support they most needed and provided with a list of topics, producers ranked "Choosing the best direct marketing strategy for your farm" and "Knowing your cost to grow, setting prices, managing finances" at the top. "Finding and keeping customers" and "Collaborative marketing and distribution options" were also identified as areas where support are needed.

How OSU Small Farms plans to help
Our survey findings reveal several notable "COVID effects" for direct to consumer marketing for farmers in Oregon. We cannot assume that these effects will be long-lasting, the "new norm," but they are worth our attention, especially as the pandemic continues to evolve. In the following discussion, we highlight four areas from our findings and offer feasible next steps to support DTC producers.

Farmers markets
The Oregon Farmers Market Association (OFMA) was and continues to be an effective advocate and reliable information source for markets, both on COVID regulations and online marketing options. We will continue our long-standing education and outreach partnership with OFMA.

Delivery
Project partners are exploring strategies, including collaborative distribution models, to serve local farmers and customers in specific regions. We can also help farmers assess the true costs of delivery and consumer willingness to pay for that service.

Online sales
COVID also prompted an increase in online sales. Many farmers already used online platforms or social media to advertise or sell. However, with the pandemic, many customers expressed a desire to be able to browse and purchase local food products online.

OFMA, Oregon Coast Visitors Association, and others have hired tech support staff to help farmers set up online marketplaces. Depending on the platform, farmers must then manage multiple inventories, communication platforms and transaction methods. As with delivery, exploring collaborative models for online sales tools may also prove beneficial for producers.

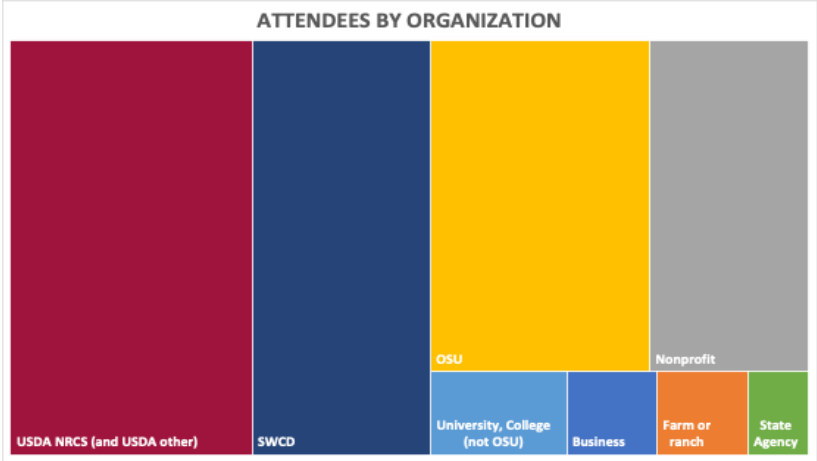
Traditional DTC channels still matter: On-farm sales
On-farm sales, both farm stands and on-farm pick-up, remain important DTC channels. Farm stands are a safe and convenient way for farmers to stock and sell product on their own property, and many are "self-serve," requiring less farm labor. Customers like farm stands for the accessible open hours, no-contact purchasing, and the opportunity to visit and experience farms more directly.
Farm stands are considered part of agricultural tourism. As more people visit farms, more farmers are asking for support navigating permits, insurance, and safety concerns for farm stands, on-farm pickup, and U-pick; we are currently creating online learning modules with this information.

Thank you to our partners
Our seven nonprofit and agency partners for this project were Food Roots, High Desert Food and Farm Alliance, Rogue Farm Corps, Ecotrust, Ten Rivers Food Web, Northeast Oregon Economic Development District, Oregon Department of Agriculture, and the Oregon Farm Bureau.

A Climate Resilience Toolbox for Working with Oregon's Farmers and Ranchers

By: Ashley Rood, Co-Director, Oregon Climate and Agriculture Network (OrCAN)

November 2-4, Oregon's agricultural professionals gathered online for a Train the Trainer event to better understand what climate resilience looks like for Oregon's farms and ranches. Over the three days, presenters made resilience tangible and accessible, with both place-based knowledge and science guiding the way. Throughout the six sessions, the turnout, the level of engagement, and positive feedback after the event far exceeded our expectations.



The event was a collaboration coordinated by Oregon Climate and Agriculture Network (OrCAN) and an interdisciplinary planning team to reflect the different audiences we wanted to attend: Amy Garrett - OSU/Dry Farm Collaborative, Hannah Gosnell - OSU College of Earth, Ocean, and Atmospheric Sciences, Joe Kline - OR Natural Resource Conservation Service (NRCS) in Eastern Oregon, Laura Lengnick – Cultivating Resilience LLC, Cory Owens -OR NRCS partnerships, Maud Powell - OSU Small Farms and lead of the Oregon Western Sustainable Agriculture Research and Education Oregon Professional Development Program WSARE PDP program (funder of the project), Holly Prendeville - USDA NW Climate Hub, and Marie Vicksta - Yamhill Soil & Water Conservation District.

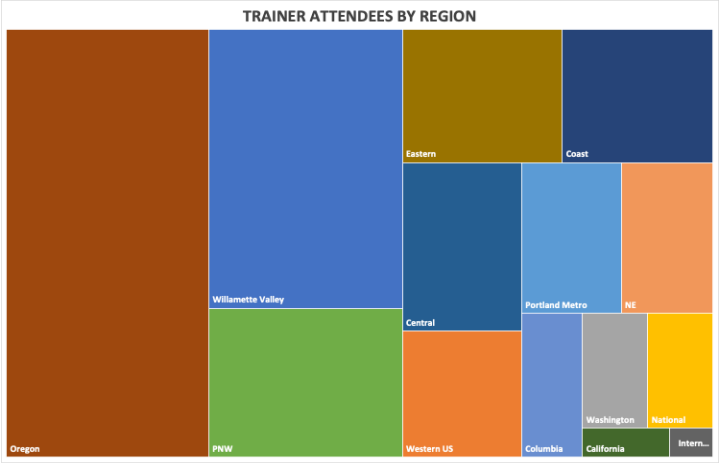
Why A Train The Trainer Event?

We gathered because we want to support, value, and uplift farmers and ranchers doing the hard work of climate resilience. And we can't do that well if we stay within our usual confines. We can't meet the challenge of climate resilience with agencies and nonprofits and researchers all disconnected. We can't do this work without listening to farmers and ranchers. We gathered because this has been a brutal year of climate change impacts for farmers, ranchers, and the people in the food system who work with them—we all need to better understand what's happening, and where we can go from here. We gathered to create a community of practice dedicated to supporting farming and ranching for climate resilience in Oregon.

The Time Is Right

275 people registered and our peak attendance was 170 people. Attendees included farm advisors and researchers from across the state, staff and faculty from: Oregon State University and Extension, soil and water conservation districts, Oregon Natural Resources Conservation Service, watershed councils, land trusts, nonprofits, other university researchers, and agricultural education providers (see chart of attendees by organization to see the breakdown).

Our team created a program based on what we heard technical assistance providers needed. The first day was a powerhouse of presenters and dynamic discussions. We talked about the latest in climate science projections for Oregon, how this will impact agriculture, and what to do about it on the ground. Throughout the day, we balanced the academic with practical application and balanced learning with discussion. OSU's Hannah Gosnell facilitated the first session with Erica Fleishman, Director of Oregon Climate Change Research Institute, Mimi Casteel a Winegrower with Hope Well, and Andrea Malmberg, a rancher with Bunchgrass Land & Livestock.
From there we went into a session focused on communicating with producers opened by Faith



Kearns from University of California Ag and Natural Resources. Kearns has done similar training for Extension staff in California and is also author of *Getting to the Heart of Science Communications* (a must read for those interested in human communication not just science communication). Kearns emphasized the importance of building relationships, letting go of assumptions and working through conflict. We kept the conversation going with a panel that included a variety of perspectives from a rancher on the eastside to social scientists focused and supply chain buyers. Panelists included: Gabrielle Roesch-McNally, American Farmland Trust, Hannah Gosnell, Jessica Luhning, Sustainability Manager Organic Valley, Joe Klein, OR NRCS in Wallowa County and Liza Jane McAlister of 6 Ranch.

On day two, Laura Lengnick led us through the science of resilience and it's practical application in Oregon and throughout the nation. She illustrated how resilience thinking and it's grounding in holistic, systemic approaches is what we need to meet the challenges of climate change. Lengnick highlighted that ecology, community, and economic viability all need to be considered when approaching farming for climate resilience. Participants workshopped what they learned using five case studies of farming for climate resilience on Oregon farms.

On the final morning, we connected soil health and climate resilience with the Natural Resource Conservation Service leading the discussions. We recorded the soil health 101 and 201 sessions that covered both the basics and more advanced soil health ecology. Cory Owens presented on the technical and financial incentives for planning and implementation of soil conservation practices that enhance farm resilience.

The final session featured breakout groups to reflect on what we'd learned and identify next steps. Amy Garrett presented on the evolution of the Dry Farming Collaborative as an example of what a community of practice could look like. Themes that came up in our reflections included: complexity and the importance of empathy, the importance of language and understanding. Drought was a drumbeat throughout. Several of our speakers spoke to the need for more eyes on the ground, more farmers. And importantly we left with hope and excitement of bringing together people from across disciplines and across the state.

What's Next

OrCAN will coordinate another WSARE PDP farming for climate resilience training in 2022. In the interim, we want to keep the conversation going and keep learning together. OrCAN and our partners want to bring the work of our existing practitioners, tools, and research on climate resilience to light. There's a need to share stories of success through online storytelling and virtual meeting spaces. We gather in more specific working groups—focused on ecoregions and/or crop types. In addition to working with technical service providers, OrCAN looks forward to creating space for farmers and ranchers to learn from peers as well. The idea of microscope clubs for soil health was so popular at the training, we may see that rolling out in 2022 as well. Check out the resources shared at the training on OrCAN's website (https://www.oregonclimateag.org/trainthetrainer)

It feels right to leave this with some inspiring words from one of our training's speakers, Mimi Casteel. Casteel writes to fellow farmers on climate resilience: "We KNOW how to do this. . .On every continent there are shining examples of proven practices that can light the way. . . . We have to rise above any anger, resentment, or pessimism to take the torch into the darkness and be humble and brave. We have to believe that we have no time left, and we have to believe in our own work. . . . what if we all demanded that the land comes first?"

New Faces Join The OSU Small Farms Program

Three new faces have joined our program over the past few months. We are so excited to have these amazing individuals as part of the Small Farms Team.

Evie Smith - Lincoln County Small Farms and Master Gardener Coordinator

Evie Smith is excited to be the new Small Farm and Master Gardener Coordinator for Lincoln County! Evie has experience in agricultural management, research and extension. She has worked in many different farming systems, which include mixed vegetables, aquaponics, and tree crops.

Evie did her undergraduate work in Agronomy and Soils and Horticulture at Auburn University. She then earned master's degrees in International Agricultural Development and Horticulture and Agronomy at the University of California, Davis. As part of her graduate studies, she worked in Guatemala, where she led trainings about agricultural value chain development. Through this work she learned about the networks involved in getting food from small farms to markets, and she honed her teaching skills. She comes to OSU Extension Service from the University of California Cooperative Extension; there she worked as a research associate, doing applied research and extension work in orchard crops. Evie is excited to use her passion for connecting with communities and experience in research and extension to support and collaborate with the small farming community and Master Gardeners in Lincoln County.

Danielle Knueppel - Jospehine County Small Farms

Danielle brings experience working in the horticulture sector, including farming at an organic fresh-cut herbs farm and working as a grower at wholesale and retail greenhouses and nurseries in Colorado and Indiana, where she grew up. She brings experience in numerous aspects of commercial horticulture, including diagnosing and managing pests, plant propagation, and improving soil fertility.

Having worked internationally across diverse settings in Central America, Asia and Africa, Danielle also brings 14 years of experience in conducting research and designing, delivering, and evaluating programs to help small-scale farmers increase their productivity and access information, farm inputs, and markets. Danielle led a program to evaluate climate-smart agricultural practices and coffee varieties to understand how coffee farmers can better adapt to climate change and become more profitable. She worked with non-profits and with USAID to strengthen food systems, conserve natural resources and strengthen farmer livelihoods.
Via OSU's Small Farms Program and the Master Gardeners Program, Danielle is excited to combine her knowledge in and enthusiasm for horticulture with her experience in program delivery to serve Josephine County producers and community members.

She has an MS in International Agricultural Development from UC Davis, a BS in Horticulture from Purdue University, and served as a Peace Corps volunteer in Tanzania (2001-2003).

Dr. Shayan Ghajar - Organic Pastures & Forages

I'm beyond excited to join the Organic Extension Program at Oregon State's Center for Small Farms. My role will be to develop a pasture and forage-focused program to support Oregon's organic, regenerative, and low-input sustainably-minded producers.

My interest in grazing and grasslands started in college when I began learning about my family's history. My father's people had been nomadic pastoralists from at least as early as the 13th century, and stayed that way into the 19th. When one begins to learn about pastoral nomadism and the many peoples who engage in it, an appreciation for the importance of grasslands and grazing inevitably follows. The migrations of countless cultures—Fulani, Turks, Huns, Bulgars, Mongols, Nguni—were driven by the abundance or lack of pasture, shaping cultural and national boundaries to this day. And now, pastures are situated at another historical crossroads, right at the intersection of food security, climate change, conservation, and culture. Though I graduated from the University of Virginia in 2009 with a double major in History and Middle Eastern Studies, it didn't take long for me to realize I wanted to focus fully on the quiet green engine driving our species.

In 2012, I began my Master's degree in Rangeland Ecosystem Science at Colorado State University with Dr. María Fernández-Giménez as my advisor. Dr. Fernández-Giménez worked with pastoralists and nomads across the globe, focusing on the importance of local knowledge and community-based natural resource management. My work at CSU focused on ranchers in Colorado and Wyoming rather than nomads half a world away, but the appreciation for local knowledge and the strength of communities of graziers was the same. And it sparked a hope in me to work in agricultural Extension to help graziers and the landscapes they steward thrive.

After graduating, I found a home in Virginia Cooperative Extension as a program coordinator on an agricultural research farm. No two days were the same as my coworkers and I carried out pasture & animal nutrition research and translated it into Extension programs for producers—all while managing a 420-acre multispecies farm. It was challenging and rewarding, and supporting the work of then-Extension specialist Dr. Bridgett McIntosh made me realize I'd like to be an Extension specialist too. This led to getting a PhD in Crop & Soil Science at Virginia Tech while continuing to live and work on the research farm. I followed that with a postdoc position at Virginia Tech before finding a new home here in Oregon with my dream job in the Organic Program at the Center for Small Farms & Community Food Systems.

My past research has included grazing ecology, integrating native grasses and wildflowers into grazing systems, forage digestibility & toxicity trials, using satellites or drones to measure and monitor pastures, and a few other things. In Oregon, I'm planning to start with a focus on forage species for organic parasite control (in collaboration with many OSU colleagues), expanding local forage species options to mitigate the summer slump, and continuing my interest in integrating new technologies into pasture management. My colleagues and I also hope to conduct a formal needs assessment with Oregon graziers to determine priority target areas for our pasture & forage-related research and outreach programs.

In the meantime, if you're an organic or low-input farmer in Oregon and need help to take your pasture to the next level, you can find my contact information HERE. Hope to talk with you soon!

Growing Farms

Serious about farming?
Come learn how to navigate the biological, financial and human aspects of small-scale farming.

This hybrid course is designed for beginning specialty crop & livestock farmers in their first 5 years of business. Students will develop a whole farm plan. Course consists of six online modules, three classroom sessions, and a field trip.

When: Tuesdays, Jan 18, Feb 1, & Mar 1 2022 - 6:00-8:00pm
Feb 15 - All Day Farm Tour

Where: North Willamette Research and Extension Center
15210 NE Miley Rd, Aurora, OR

Cost: $100 per person
Scholarships Available

REGISTRATION WILL OPEN ON NOVEMBER 29. DISCOUNT FOR OSU SMALL FARMS CONFERENCE (FEB 19) IS INCLUDED.

Contact Hayley White for questions - hayley.white@oregonstate.edu

Oregon State University Extension Service

POLK Soil & Water Conservation District

Farming on The Edge

By: Maud Powell, Small Farms Program, Oregon State University

Tom and I learned to farm in India, in a region that receives an average annual rainfall of 3 inches. Our host family irrigated their barley and potatoes fields from ancient ditches fed by glaciers. While there, we fell in love with small scale agriculture and decided to return home and start our own farm. Our vision was to create a profitable, sustainable business on land considered to be marginal, knowing that property with ample water and fertile soils was becoming increasingly scarce. We believed that to survive in the long run, humans needed to be able to grow food on the edge—in all kinds of soil types and with less water.

Photo by Maud Powell

In the summer of 1998, we bought a scabby, mountain property with steep slopes and acres of the pernicious weed, star thistle. Wolf Gulch, the property's water source and namesake, is intermittent, running underground for long stretches of the creek bed. Though the land is not technically designated for farm use, we forged ahead. We dug three large storage ponds to collect winter rains and planned to keep them topped off by creek water during the summer. Then, we designed a gravity fed irrigation system that requires no pump or electricity. Meanwhile, we studied permaculture design and applied its principles to our new farm. Permaculture, a system of holistic land management practices, aligns with our practical, ecologically-minded approach to life. First and foremost, we learned to conserve water. A key practice of permaculture is to keep water as high on the land for as long as possible in order to maximize efficiency.

We purchased a keyline plough. The heavy sub-soil implement creates deep furrows in the fields which increases water retention. We ploughed along the slope's contour so that water would fan out laterally along the furrows and cause less erosion. Every fall, we seeded cover crops to increase the soil's organic matter and water holding capacity. Within ten years of production, our best fields boasted a full foot of topsoil.

Between the fields, we planted hedgerows to mitigate the north wind, which dries out the crops through increased evapotranspiration. The hedgerows, comprised of conifers, fruit and nut trees, and nitrogen-fixing shrubs, provide food for us and the birds, as well as much-needed summer shade.

2001 marked our first brush with drought. Our valley received eight inches of rainfall that winter, just over a third of the usual twenty-two. The ponds dried up and cracked, and became useless for holding water. After some soul searching, we decided to invest in thick plastic pond-liners- an expensive but full-proof solution to the cracking. We also transitioned to irrigating exclusively with drip tape, which uses 25-40% of the water needed for overhead irrigation. There are downsides to drip tape—additional labor

Photo by Maud Powell

and maintenance, and more plastic, though we've managed to reuse most of it for at least eight-ten years. But upsides (beyond water conservation) include less weed and disease pressure. The pond liners worked, and we declared ourselves back in business.

For twenty-three years we have grown produce for local markets, run a cooperative Community Supported Agriculture (CSA) program, improved and produced hundreds of seed varieties, supported our son in developing his own variety of pepper seed, and trained dozens of new farmers through Rogue Farm Corps' internship program. We've participated in a wide and deep community of friends, artists, activists, and farmers. Most importantly, this is where we raised our two children. We have grown deep roots and built networks of human, animal, soil, and plant communities. This is home. Some of those winters brought less than average rainfall, but the steps we'd taken to conserve water and build topsoil made our farm resilient. Or so we thought.

Last summer, after several winters of below average rainfall and months of record-breaking temperatures, the creek dried up completely. Tom fought to keep the crops irrigated. He pumped water from the lower pond to the upper pond, shortened watering intervals, and harvested early when needed. In retrospect, the writing was on the wall.

The winter of 2020-21 passed with continued lower than average rainfall. Every day in April brought sun and warmth. While acquaintances on the street marveled at the good weather, a pit lodged in my stomach. We began to notice scores of dying doug fir trees in our woodlot. Our favorite incense cedar and red fir trees died. I prayed for a wetter May. One blustery Wednesday afternoon, we got a tenth of an inch of rain. But no more. We marched into June with our ponds lower than ever and alarming weather forecasts. And then an unprecedented heatwave arrived the fourth week of June. Medford hit 117°. Strong, high-pressure atmospheric conditions created vast areas of sweltering heat trapped under a high-pressure "dome." The dome continued for weeks with no break. For twenty-five days straight, the high temperature did not fall below 95. The ponds dropped, the crops withered in the heat.

Tom moved into triage mode, working to keep crops alive with the last remaining water, sometimes resorting to extreme measures. Farming is notoriously hard work. Add drought and relentless heat (not to mention months of smoke and fire danger) and the work becomes demoralizing and untenable.

In July, Tom and I faced the fact that farming at Wolf Gulch is no longer feasible. We smashed headlong into the reality of our current climate catastrophe. If we want to keep farming, we need to find a different property. And so we reckon with moving from the land and community we have poured our passion and sweat into for over two decades.

One August night, I lay awake wondering how we could store and save more water. We collect rain from our house and barn roofs during the winter. But the tanks only hold 2,000 gallons each. What if we

pump rainwater from the tanks into our ponds all winter long, every time they fill? Surely there would be enough. I shook Tom awake, eager to talk. He was confused and groggy at first, then slightly irritated at being woken up. I explained my idea.
He nodded. “I already do that. But it’s a good idea.”

Of course he already does that.

Meanwhile, in India, the farmers who mentored us are grappling with the disappearance of the glaciers that feed their ditches. Our heartbreak, shared amongst so many farmers around the world, means less local and regional food security everywhere, and the unraveling of once vibrant agricultural communities.

Our neighbors have rallied around us, offering leases, leads on property with more water, and boundless empathy. They share in our heartache and outrage. We count our blessings every day. And yet to know that the work we’ve done to protect and steward Wolf Gulch, the lengths we’ve gone to collect and store water, is simply not enough to shield us from climate collapse, is both heartbreaking and terrifying. We are left with existential dread and anxiety, and the difficult question of where to call home.

Policy Opportunities To Advance Climate Resilience on Oregon's Agricultural Lands

By: Megan Kemple, Oregon Climate and Agriculture Network

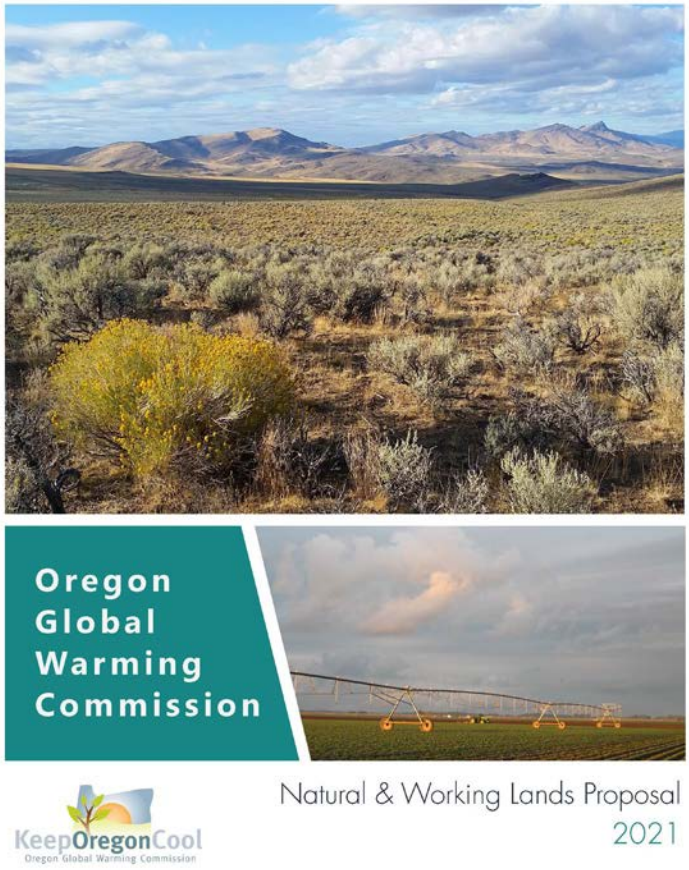
While agriculture is uniquely threatened by the impacts of the climate crisis--wildfires, drought, extreme weather events--it is also poised to address it. With sufficient resources, farmers and ranchers can reduce greenhouse gas emissions, and store carbon in soil and woody plants. According to the International Panel on Climate Change, we cannot reach our goals to cool the planet without investing in soil carbon sequestration strategies in addition to cutting global greenhouse gas emission. Agricultural land management is one of the most ready and cost-effective pathways to get us there--while also providing wildlife and pollinator habitat, clean water and air.

The State of Oregon is opening up exciting policy pathways to support climate resilience on agricultural lands. The Oregon Global Warming Commission (OGWC) recently proposed strategies for carbon sequestration and storage by Oregon's natural and working lands, including agricultural lands in their Natural and Working Lands Proposal. Oregon Climate and Agriculture Network (OrCAN) and partners provided input on the Proposal and OrCAN supports all of the agriculture-related strategies in the Proposal.

There are some promising opportunities for Oregon agriculture included in the Proposal. OrCAN is especially excited about the recommendation to invest in Oregon's crop and rangelands through *establishment of a comprehensive climate-smart agricultural program*. The program would evaluate and incentivize soil health practices and other climate-smart practices.

These practices include:

- cover cropping
- compost application
- hedgerow and riparian plantings
- reduced tillage and no till



- rotational grazing
- crop rotation
- nutrient management
- silvopasture and agroforestry

Other ways of looking at these practices are to focus on the four principles of soil health: keep the soil covered, minimize soil disturbance and inputs, maximize biodiversity (which can include integrating animals), and maintain living roots.

These practices and principles not only build healthier soils, they improve water retention and filtration on farms, sequester carbon and support adaptation to an ever-changing climate.
Other climate-smart agricultural practices include

on-site renewables, irrigation modernization, and alternative manure management.

To adopt these and other practices on a wider level farmers need technical assistance, education and financial incentives. The Proposal recommends a climate-smart agricultural program which would:

- Promote *climate-smart management practices*
- Promote *farmer-to-farmer learning*
- Integrate *outreach and education* efforts
- Include soil health *demonstration projects*
- *Highlight soil health improvement efforts*
- Provide *incentives for implementing climate-smart practices*

OrCAN is also encouraged that the OGWC proposal highlights the important role of agriculture: "With Oregon's ....productive agricultural and rangelands, we have the potential, if not the imperative, to enhance our natural and working lands' significant contribution to climate change mitigation."

What's Next?
Now we need to make sure these recommendations are implemented. OrCAN and partners will be working hard to pass a bill during the 2022 legislative short session to develop the soil health and climate-smart agricultural program. We'll also be involved with program development and implementation to ensure the programs and strategies are strong on climate, practical for farmers, and support a resilient and equitable food system

There's a place for you as part of this exciting work. You can engage with OrCAN by advocating to the legislature and providing input on development of the climate-smart agriculture program. Help us advocate for strong policies that work for farmers on the ground!

To get engaged with OrCAN complete our engagement survey linked here and indicate how you'd like to be involved with our work.

Or contact Megan Kemple, Director of Policy Advocacy megan@oregonclimateag.org

OSU Livestock & Forages Western Oregon Newsletter

This newsletter comes only in electronic form for special delivery of added material. It is written by OSU Extension faculty to bring you agricultural production information, important news and notices, and announcements on upcoming programs.

You can access monthly issues on your own through the newsletter home page or automatically receive them through email subscription. Write to Livestock.Forages@oregonstate.edu with the subject line "Subscribe." If you would, please also provide your name, county of residence, and phone number. Include information on what livestock you raise, any hay or pasture you sell or rent, and farm services you offer. This information is for us to know our readers better. We never share your private information with anyone without your permission. Thank-you!

Oregon State University

Extension Family & Community Health

Now Hiring

Food Security & Safety Program Manager

A new position created to integrate, leverage, and expand current Extension programming to promote community food security.

Oregon State University Extension Family and Community Health (FCH) program invites applications for a Food Security and Safety Program Manager. This position provides statewide leadership, and will be based in either the Marion or Polk County, Oregon office of OSU Extension.

The Food Security and Safety Program Manager will collaboratively develop and implement an integrated vision for community food security programming, bringing together community food security efforts, food safety and preservation efforts, educational approaches, and future programming to meet the needs of Oregonians. The Program Manager is part of a team of Extension faculty and staff serving the state of Oregon, therefore collaborative work across disciplines, organizational units, and Extension program areas is expected.

OSU commits to inclusive excellence by advancing equity and diversity in all that we do. We are an Affirmative Action/Equal Opportunity employer, and particularly encourage applications from members of historically underrepresented racial/ethnic groups, women, individuals with disabilities, veterans, LGBTQ community members, and others who demonstrate the ability to help us achieve our vision of a diverse and inclusive community.

For additional information and to apply:

https://jobs.oregonstate.edu/postings/111476 .
Posting #P05076UF.

Posting closes on January 18, 2022

Full benefits including medical, dental, & vision

PERS pension/retirement
Paid vacation
Sick leave and federal/state holidays
Tuition reduction for eligible employees
Professional development

Oregon State University
Extension Service

Small-Scale, Local Producers Get Improved Insurance Coverage through New Micro Farm Policy

Agricultural producers with small-scale farms who sell locally can now get simplified insurance coverage through a new policy designed for their needs. The U.S. Department of Agriculture (USDA) developed the new Micro Farm policy, which simplifies recordkeeping and covers post-production costs like washing and value-added products.

Micro Farm is offered through Whole-Farm Revenue Protection (WFRP) and is geared to local producers. Details include:

- Eligibility: Micro Farm is available to producers who have a farm operation that earns an average allowable revenue of $100,000 or less, or for carryover insureds, an average allowable revenue of $125,000 or less. The increase in allowable revenue for a carry-over insured will allow for some farm growth in subsequent years before they become ineligible for the program. RMA's research showed that 85% of producers who sell locally reported they made less than $75,000 in gross sales.
- Coverage Levels: All coverage levels will be available to producers using Micro Farm. This will enable producers to purchase the 80% and 85% coverage levels without providing additional paperwork.
- Underwriting and Recordkeeping Requirements: Micro Farm minimizes underwriting and recordkeeping requirements, and producers will not have to report expenses and individual commodities.
- Post-production Revenue: Producers can include post-production activities as revenue, such as washing and packaging commodities or value-added products like jam.

Micro Farm is available for the 2022 crop year. Sales closing dates are Jan. 31, 2022, Feb. 28, 2022, or March 15, 2022, depending on the producer's county.
Producers with crops insured under another crop insurance policy or a vertically integrated operation will not be eligible.

The Micro Farm policy builds on other RMA efforts to better serve specialty and organic crop growers. This includes WFRP, which provides coverage for producers with larger operations that may not be eligible for Micro Farm. RMA recently made improvements to WFRP as part of a broader set of new policies and expanded policies to assist specialty crop and organic producers.

More Information: Crop insurance is sold and delivered solely through private crop insurance agents. A list of crop insurance agents is available at all USDA Service Centers and online at the RMA Agent Locator. If you have difficulty finding an agent, contact your RMA Regional Office. Learn more about crop insurance and the modern farm safety net at rma.usda.gov.