

Welcome to the webinar!

- The webinar will start at the top of the hour.
- Find a handout of the slides in the “handouts” section of your gotowebsinar control panel.
- To type in a question, use the question box on your control panel.
- The webinar is being recorded and you can find it in our archive within the next 2 weeks at <http://www.extension.org/pages/25242> and on the eOrganic YouTube channel





Micaela Colley, OSA



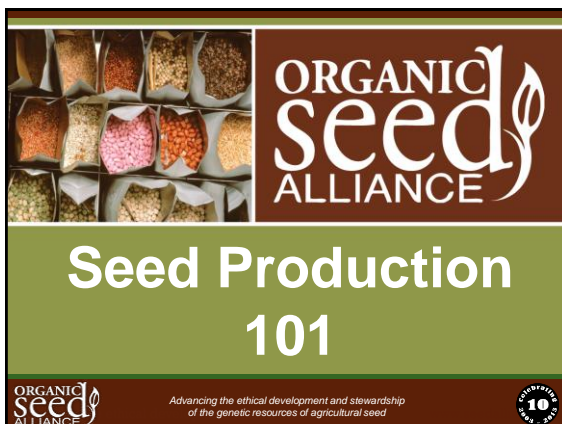
Laurie McKenzie, OSA



Jared Zystro, OSA



Leah Atwood, MESA



Training Beginning Farmers & Beginning Seed Growers

hosted by
Organic Seed Alliance (OSA) and Multinational Exchange for
Sustainable Agriculture (MESA)

- Internships
- Education resources
- Workshops
- eOrganic webinar series

(every third Tuesday June – November)

*Supported by the USDA, Beginning Farmer Rancher Program



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of the genetic resources of agricultural seed



Where to start

Picking your seed crop (Laurie McKenzie, OSA):

- Understanding seed crop biology
- Which crops are right for your climate

Planning your seed crop (Jared Zystro, OSA):

- Production planning
- Field layout
- Record keeping

Introduction to internship program (Leah Atwood, MESA)



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Open Pollinated (OP)

A stable variety that breeds true from seed. Seed of OP varieties are produced by allowing plants to openly pollinate with others in the population.

Hybrid (F1)

Commonly referred to as an F1. A variety that is created by the controlled crossing two parental types. Seed saved from hybrids does not breed true to type.







Which seed crops can you handle?

- Isolation
- How many can you grow?
 - Multiples of same species
- Integrating into existing system
- Harvest time demands
- Additional equipment or tools required?




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10 YEARS 2008-2018

Annual Plants

Complete their reproductive cycle in one season

- Widely variable flowering times
- Must plant early enough to mature seed
- Tender perennials – Tomato, Pepper
- Lettuce, Sunflower, Garden Pea, Cucumber, Broccoli, Common Bean, Corn




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10 YEARS 2008-2018

Biennial Plants

Complete their reproductive cycle in two seasons

- Vegetative and storage stages
- Vernalization: 8 – 10 wks @ < 50° F
- Plant for optimum over-wintering size and condition
- Expect to lose some during winter
- Carrot, Beet, Cabbage, Celery, Onions, Parsnip, Swiss Chard, Turnip




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10 YEARS 2005-2015

Pollination Systems Selfers

- Biological mechanisms to ensure selfing
 - Always have perfect flowers
 - Anthers and stigma in close proximity
 - Often with petals that remain closed
 - e.g. Fabaceae family (garden beans and peas)
- Sometimes petals will open after sexual union
 - e.g. Asteraceae family (lettuce, endive)



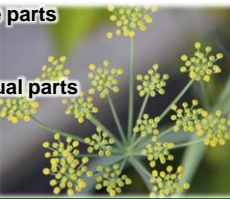
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10 YEARS 2005-2015

Pollination Systems - Crossers

- Biological mechanisms to ensure crossing
 - Separation of male & female parts
 - Self-incompatibility
 - Temporal separation of sexual parts
 - Showy flowers
 - Copious pollen producer



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10 YEARS 2005-2015

Self & Cross-Pollinating Species Spectrum

SELFERS

CROSSERS



Peas Lettuce

Tomato Pepper

Squash

Umbels
CornBrassicas
Chenopods5 plants
acceptable12 plants
minimum60 plants
minimum200 + plants
desirableSelfers need
minimum isolationCrossers need
much greater isolation

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Regional Considerations



- Temperatures
 - Min/Max
 - Day/Night
 - Timing of peak temps
 - Fluctuations
 - Duration
 - Overall heat units
 - Frosts



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Regional Considerations



- Length of season
- Day length
- Seasonal rainfall
- Wind (staking)



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Pollination Requirements

- Temperature
- Presence of pollinators
- Wind
 - selfers and crossers
- Rain or irrigation



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10 YEARS
2006-2016

Seed Crop Type

Dry Seeded	Wet Seeded
• Harvest like grains	• Harvest fruits
• Need seasonal dry	• Water extraction
• Low humidity environments best	• Higher humidity is tolerated & desirable
• Susceptible to disease at maturity	• Easier to avoid direct contact w/ diseases

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10 YEARS
2006-2016

Cool Season, Dry Seeded

- Cool, wet extended spring weather
- Moderate temps (<75F) for flowering and early seed development
- Gentle rains and wind during summer
- Dry weather in late summer and early fall

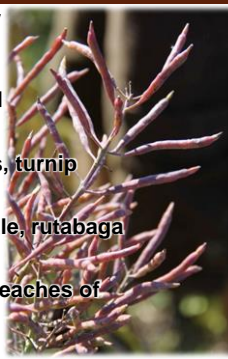


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10 YEARS
2006-2016

Cool Season, Dry Seeded

- Spinach, beets, Swiss chard
- *Brassica oleracea* clan
- *Brassica rapa*; Asian greens, turnip
- *Brassica juncea*; mustards
- *Brassica napus*; Siberian kale, rutabaga
- Parsnips and cilantro
- Salish Sea, S.W. B.C., cool reaches of interior mountains



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Warm Season, Dry Seeded

- Similar to cool season, dry seeded
- More variable springs – warmer, drier
- Warmer summers
- Temperatures can be 75-82F for flowering and early seed development
- Longer maturing, longer rain free period needed



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Warm Season, Dry Seeded

- Radish, kale, collards, some cabbages, turnip
- Swiss chard, sugar beets
- Celery and parsley
- Lettuce
- Peas, favas, some common beans
- S.W. WA, OR Willamette Valley, Coastal California Valleys, Mountain Valleys, N. Idaho



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Hot Season, Dry Seeded

- Warm weather in spring, irrigate early
- Temperatures often into
 - 80°F by flowering
 - 90°F by summer
- Dry in late summer, often till fall



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Hot Season, Dry Seeded

- Garden, dry, lima beans, edamame
- Carrot
- Onion
- Sweet corn
- E. Oregon, S. Idaho, CA Valleys, W. Great Plains, Mountain West, Upper MW



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Hot Season, Wet Seeded

- Warm nights in spring or summer
- Moderate to high humidity
- Warmth has “settled” by early summer
- If done under dry conditions, there is often a loss of yield



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Hot Season, Wet Seeded

- Squash, cukes, melons, watermelons
- Cukes like it a bit cooler (<77F)
- Tomato, peppers, eggplant
- Tomatoes like it a bit cooler (<82F)
- Arkansas Valley of Colorado, Central Texas, S. Ohio, Warmer reaches of the Great Plains



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Seed is the foundation
of food

Planning your seed crops

- What can you grow?
- How much should you grow?
- Where can you grow it?
- When to plant?



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What can you grow?

- Environment
- Isolation (crops and weeds)
- Skill set
- Tools



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How much should you grow?

- Working backwards:
 - What is your market?
 - How much overage is possible?



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How much should you grow?

- Working backwards:
 - Estimating yield
 - Best info: your own experience
 - Invest in R&D – small contracts, trials



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How much should you grow?

- Working backwards:
 - Estimating yield
 - Best info: your own experience
 - Second best: local farmers, seed companies
 - Finally, Knott's Handbook



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Putting it together

Crop	Variety	# ordered	\$/#	total \$	est.yield/bed	beds needed	adjusted	\$/bed
Arugula	x	600	\$35.00	\$21,000.00	15	40.0	40.0	\$525.00
Carrot	x	100	\$100.00	\$10,000.00	12	8.3	8.5	\$1,200.00
Chard	x	50	\$30.00	\$1,500.00	20	2.5	2.0	\$600.00
Collard	x	100	\$45.00	\$4,500.00	20	5.0	5.0	\$900.00
Cosmos	x	25	\$75.00	\$1,875.00	10	2.5	3.0	\$750.00
Eggplant	x	5	\$200.00	\$1,000.00	3	1.7	2.0	\$600.00
Fennel	x	3	\$100.00	\$300.00	15	0.2		\$1,500.00
Lettuce	x	25	\$65.00	\$1,625.00	7	3.6	4.0	\$455.00
Lettuce	x	25	\$65.00	\$1,625.00	7	3.6	4.0	\$455.00
Lettuce	x	15	\$65.00	\$975.00	7	2.1	2.0	\$455.00
Lettuce	x	10	\$100.00	\$1,000.00	7	1.4	2.0	\$700.00
Melon	x	25	\$50.00	\$1,250.00	6	4.2	4.0	\$300.00
Mustard	x	100	\$35.00	\$3,500.00	20	5.0	5.0	\$700.00



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Where can you grow it?

- Isolation requirements?
- Crop rotations



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Where can you grow it?

- Isolation requirements?
- Crop rotations
- Irrigation planning



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Putting it all together – field maps

1																			
D	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
C	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato



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When to plant?

- Working backwards
- Critical times:
 - Flowering – dry, correct temps



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When to plant?

- Working backwards
- Critical times:
 - Flowering – dry, correct temps
 - Harvest – before rains and frost
- Flexibility in planting date? Pick the best time, not the earliest



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Recordkeeping Resources

- OSA's seed crop recordsheets
- Crop plan template
- Field activities template



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Additional resources

Organic Seed Alliance: www.seedalliance.org
jared@seedalliance.org
laurie@seedalliance.org

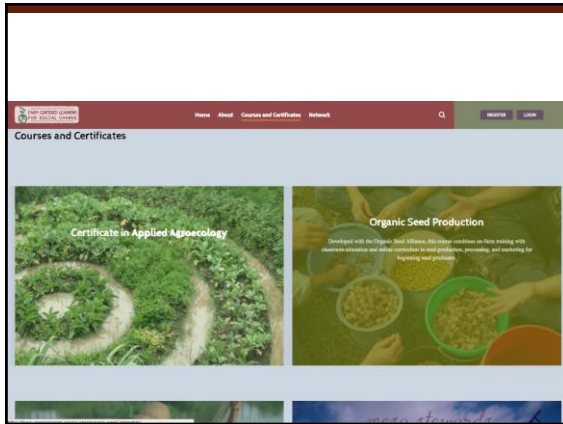
Seed Internship Website:
<https://apply.mesaprogram.org/osa/>

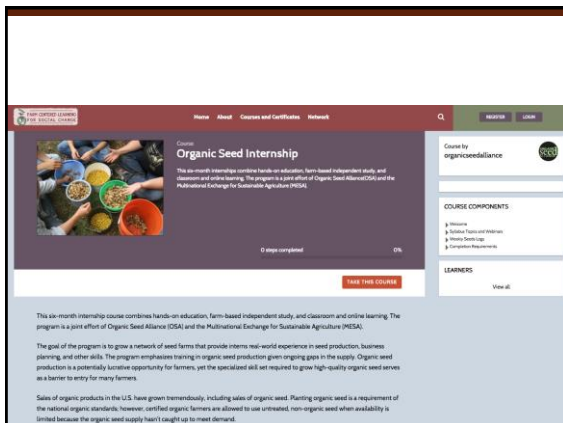
eOrganic: organic seed resource guide

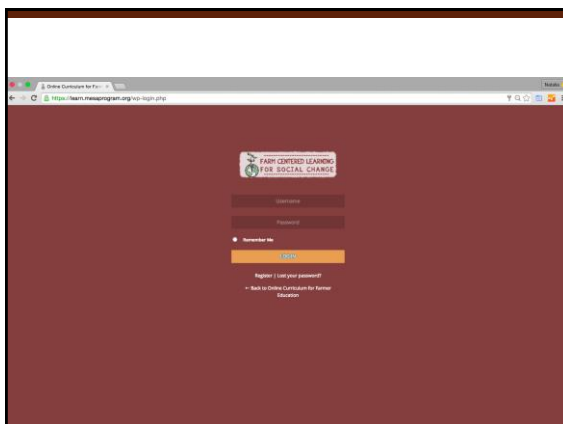


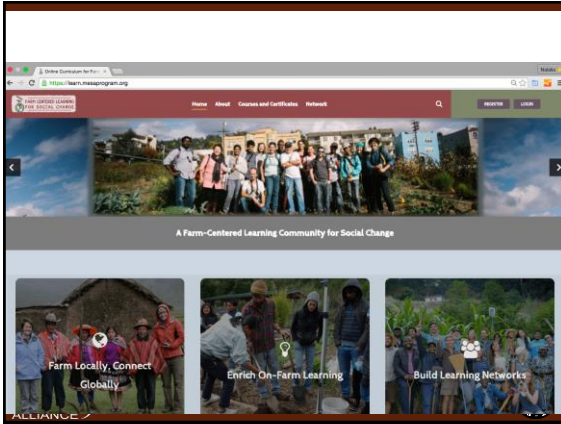
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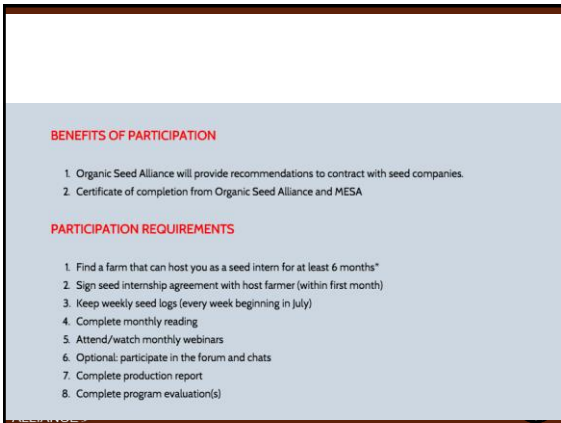


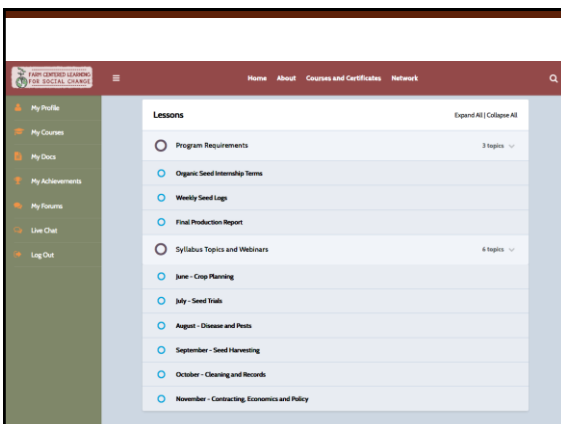












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- Thank you for coming!