

Scaling Up Seed Production Practical Training for On-farm and Collaborative Plant Breeding Webinar Series 5

Presenters: Julie Dawson, University of Wisconsin Madison; Tessa Peters, The Land Institute; Jared Zystro, Organic Seed Alliance; Erica Kempter, Nature and Nurture Seeds; Michael Lordon, Organic Seed Alliance

Welcome to the webinar!

We'll start at the top of the hour

Slides and recordings of previous webinars in this series are available at <https://eorganic.org/node/35654>

Upper Midwest Collaborative Plant Breeding Network



Webinar Series

- 1. Goal setting and design (Jan 10)**
Identifying opportunities and designing projects
- 2. Selecting high-quality breeding material (Jan 17)**
Choosing parents, Accessing germplasm, MTA's, IPR
- 3. Management considerations for seed quality (Jan 24)**
Seedborne diseases, Seed testing and sanitation
- 4. Getting to variety release (Jan 31st)**
Commercialization planning, Licensing, IPR
- 5. Scaling up seed production (today)**
Enterprise budgets, Stock seed, Contracting
- 6. Data management and analysis (Feb 14th)**
Managing pedigrees and data, answers to your analysis questions!



Developing and maintaining seed systems

Tessa Peters, Director of Crop Stewardship

2 / 7 / 2023

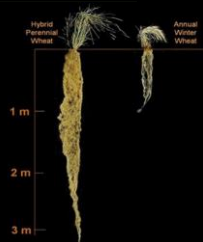


Develop a perennial, diverse agriculture, while promoting a community life at once prosperous and enduring



Kernza® Perennial Grain

- *Thinopyrum intermedium* (Intermediate wheatgrass)
- "Kernel": the seed of a cereal grass
- "Konza": native tallgrass prairie in the northeast of Kansas, name of the research station at KState, alternative name of the Kaw Nation and Kaw People







Foundation Seed	Stock Seed	Production Seed
Foundation seed needed	Stock seed needed	Pounds of production seed needed

Pounds per acre (PLS)	Related to planting rate
Estimated germination rate	Related to sensitivity of seed
Seed multiplication factor	Related to management practices
Years between production grow outs	Related to market
Years between stock seed grow outs	Related to seed longevity / storage
Years between foundation seed grow outs	Related to seed longevity / storage
Estimated yield per acre	Related to environment, management, etc.

Question	Answer
Pounds of Production Seed	10000
Seed Multiplication factor (i.e. ratio of seed yield to seed planted)	100
Years between production growouts (typically 1 or 2 years)	1
Years between stock seed growouts (typically 3 years)	3
Years between foundation seed growouts (depends on longevity)	9
Estimated yield per acre	500
Stock seed needed each year:	200
Stock seed production amount	600
Foundation seed needed each year:	50
Foundation seed production amount	450

Year	Year Number	Foundation seed to produce	Stock Seed to produce	P5/SS Acreage	Production seed to produce	Production seed acreage	Total Acreage
2022	0	450	600	2.1	10000	20	22.1
2023	1	0	0	0	10000	20	20
2024	2	0	0	0	10000	20	20
2025	3	0	600	1.2	10000	20	21.2
2026	4	0	0	0	10000	20	20
2027	5	0	0	0	10000	20	20
2028	6	0	600	1.2	10000	20	21.2
2029	7	0	0	0	10000	20	20
2030	8	0	0	0	10000	20	20
2031	9	450	600	2.1	10000	20	22.1
2032	10	0	0	0	10000	20	20
2033	11	0	0	0	10000	20	20
2034	12	0	600	1.2	10000	20	21.2
2035	13	0	0	0	10000	20	20
2036	14	0	0	0	10000	20	20
2037	15	0	600	1.2	10000	20	21.2
2038	16	0	0	0	10000	20	20
2039	17	0	0	0	10000	20	20
2040	18	450	600	2.1	10000	20	22.1
2041	19	0	0	0	10000	20	20
2042	20	0	0	0	10000	20	20

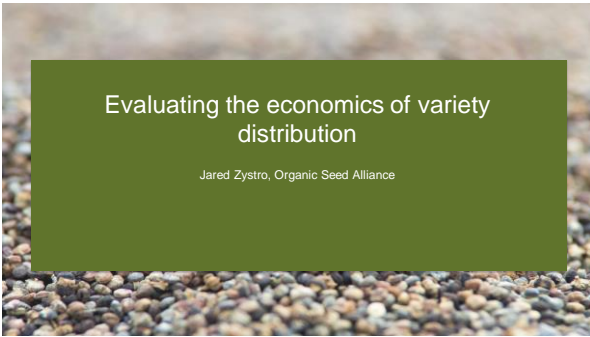
Thanks

If your life's work
can be completed
in your lifetime,
you're not thinking
big enough.
~ Wes Jackson



Evaluating the economics of variety distribution

Jared Zystro, Organic Seed Alliance



How are your seeds going to get into the world?

Seed production,
distribution and
maintenance are critical
parts of variety development



Production and distribution considerations

- Will you produce the seeds yourself?
- Will you sell the seeds yourself?
- How much to produce and sell?



The enterprises inside variety release



Each of these can be evaluated separately



Variety development

- What were the costs (labor, materials, infrastructure) that you put into developing the varieties?
- If you keep seed production or distribution in-house, how much do you need to "pay" your variety development enterprise to account for the costs you've incurred and to match what you can get as royalties from a seed company?



Commercial seed production

- Will you produce the seeds yourself or will others produce the seed?
 - Are you in a climate suited to produce sellable seed of your varieties?
 - Do you have the capacity to produce seed?
 - Does it make economic sense?



Does it make economic sense?



Home / Create new

Organic seed production is a developing industry and viable economic opportunity for organic growers. To help growers manage the uncertainties and risks inherent to seed production, seed to help growers earn more profit, OSA developed the following tools to assist seed entrepreneurs. The toolkit below offers support in the form of budgeting spreadsheets, inventory management, foundation and stock seed.

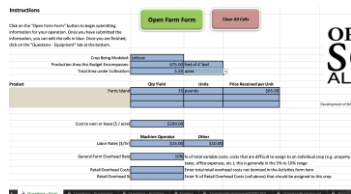


<https://seedalliance.org/publications/seed-economics-toolkit/>



Does it make economic sense?

- Enterprise budgets



Available as Excel in the Economics Toolkit or as a Google Sheet: <https://tinyurl.com/SeedBudget>



How much to produce?

- What is the market and what are your inventory needs?
- What is your capacity?
- How does scale change profitability?



Sales and distribution

- Consider as separate business
- How much marginal cost will you incur from managing seed sales?
 - Added labor from packeting, shipping, marketing
 - Added costs from packets, packeting equipment, shipping
- How does it compare to the price you would receive from a seed company?
- Can you sell as much seed as another company?



Seed Contracting Basics

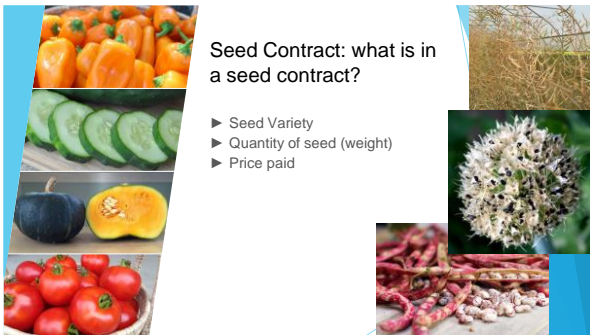
Erica Kempter, Nature & Nurture Seeds

What is seed contracting?

Seed company (buyer) and seed grower make a formal arrangement for the production and buying of a seed crop

Seed Contract: Purpose

- MOU between buyer/seed company and seed grower
- Guaranteed buyer
 - guarantees that if the grower produces the seed (within the specified parameters spelled out in the contract) that the seed company will buy it



Seed Contract: what is in a seed contract?

- Seed Production - responsibilities of grower
 - planning, irrigation, planting, pest management, harvesting, seed cleaning & delivery
- Variety Quality control
 - Isolation required for each seed crop
 - Minimum population size
 - Monitoring & inspecting
 - Roqueing and variety maintenance



Seed Contract: what is in a seed contract?

- Progress reports & reporting problems
 - When/If the crop was planted?
 - Grower reports any problems, pests/diseases
 - Mid season progress report - photos
 - Nearing harvest report - confirmation of condition of seed crop



Seed Contract: what is in a seed contract?

- Date seed crop is due
- Seed cleaning & purity
- Minimum Germination Rate



Finding Organic Seed Production Partners & Quality Assurance

Michael Lordon; Organic Seed Alliance

Organic Seed Alliance - Seed Producers Network

- Conferences, online network
- Filter by crop, scale
- Communicate early & clearly



Quality Assurance Testing

- Physical assessment of seed
- Grow-outs, field evaluation
- Advanced screening options



Additional Resources

- Webinar Series Recordings and Slides: <https://eorganic.org/node/35654>
- Seed Economics Intensive Part 1: Inventory Management <https://youtu.be/UAGhpdY2yos>
- Seed Economics Intensive Part 4: Enterprise Budgets
- Seed Economics Toolkit: <https://seedalliance.org/publications/seed-economics-toolkit/>
- Organic Seed Production Webinar Part 6: Seed Contracting and Economics: <https://youtu.be/XUD-m9N4M3Q>
- Seed Contracting Webinar and Forum for Midwest Growers: <https://youtu.be/8H8GYuUnlyY>
- Seed Quality Best Practices: <https://seedalliance.org/publications/seed-quality-best-practices-for-vegetable-seed-handling-in-montana/>
- Scaling Up Vegetable Seed Production with Steve Peters: https://youtu.be/_TOWOeJd4SM
- <https://www.eorganicseedcommons.org/> Organic Seed Commons
- <https://www.eorganic.info/collaborativebreeding> Collaborative Breeding Network Website

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