

Merrimack County Conservation District

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FINAL REPORT: Merrimack County New Hampshire Cover Crop Seed Production Feasibility Project



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INTRODUCTION

Though many farmers utilize the practice of cover cropping for soil fertility, there is no producer of cover crop seeds in New Hampshire. Having to ship in cover crop seeds is not only expensive, but it is sometimes unreliable and comes with its own environmental impacts. Merrimack County has the opportunity to bring municipal and private lands into agricultural production to address the needs of local farmers. This project aims to conduct a feasibility assessment to determine the viability of such an endeavor and to create a plan for implementation should it be feasible. A team of staff from the Merrimack County Conservation District (MCCD), local farmers, community partners, and Extension specialists will hold monthly meetings to discuss logistics, costs, multifunctionality of facilities, and projected income in order to keep the operation running. The team will conduct a market survey to determine the interest in purchasing local cover crop seeds as well as the utilization of processing facilities. Once all data has been collected and reviewed, the team will make the decision as to whether the endeavor is feasible or not. The final part of the project will be to determine next steps and gather resources for pursuing them. Throughout the project MCCD staff will conduct outreach to farmers and the community through newsletters in order to invite farmers to participate in proceedings, distribute the market survey, release the results of the feasibility assessment, and make a final report on next steps in the project.

METHODS

To conduct the feasibility assessment as described in the first objective, the team met on a monthly basis until the spring planting occurred, which team members were unable to attend afterwards. Each meeting had a specific topic or section of the feasibility assessment to be addressed, and M CCD staff recorded to capture the discussed information. Topics included creating a list of necessary equipment, addressing soil fertility management, exploring best practices for weed and pest management, and processing facility infrastructure needs. Either at or before this meeting, the approximate acreage being brought into production will be calculated, and the approximate yield of different cover crop seed varieties will be discussed. All data will be recorded in a production capacity spreadsheet.

Soil samples were also taken at potentially available municipal lands and at commercial farms potentially interested in participating. These tests used the University of New Hampshire Soil Laboratory and Cornell University for their soil health testing. The data from the tests will be used to determine the amendments needed to begin cover crop seed production and thus will inform the list of startup costs.

Surveys were also created, disseminated, and reviewed by the team related to farmer interest in the program and market interest in the program.

In addition to the originally proposed project, M CCD conducted test plots at the Merrimack County Farm in order to assess growing capacity at the farm. M CCD tested Buckwheat, Oats, Peas, and Rye.

In the end, a final report will be created by M CCD staff to be reviewed by the team and disseminated to Northeast SARE, partners, and potential collaborators.

FINDINGS

The Merrimack County Conservation District and its partners are committed to soil health practices, which includes using appropriate cover crops. Luckily, this practice has increased in use with New Hampshire farmers with greater outreach to farmers, NRCS cost-share programs, and drivers from consumers looking for products that are sustainably grown. One problem that MCCD noticed over the recent years is inconsistent availability of cover crops. The question we set out to find was whether it was logical to put some acres into production for the creation of cover crop seeds for our own internal use and, possibly, as a second source of income for commercial or municipal farms. Below are some key findings from this project:

1. **There is Interest In Home Grown Seeds:** If the cost is right and the timing works, there was interest in farmers to purchase home grown cover crop seeds. Availability and pricing were the deciding factors for potential customers. There is also interest in buying other types of seeds such as pollinator seeds. Purchasing seeds for food production was also desired by potential customers. Are there enough customers? That is yet to be seen but this study is a start.
2. **Available Arable Land:** In order for this to be a success, the first obstacle is available land. Arable land in New Hampshire is not readily available. For those lands in production, farming for cover crop seeds may not be the best option financially. Other crops could be more profitable for the farmer. Municipal lands, such as the Merrimack County farm, may be the best option for production of cover crop seeds as these entities do not want to compete with private sector farmers but also want to keep their land in production for the common good.
3. **Competition for Arable Land to Grow Artisanal Grains:** Throughout this project, MCCD has communicated with Sarah Cox of Tuckaway Farm in Lee, NH, and Jessica Gorhan, food systems consultant, who are working on building a business plan for artisanal grains grown in New Hampshire. The desire to grow grains for human consumption versus cover cropping would desire the same arable land and, as stated in Finding #1, competition for land is difficult.
4. **Potential for Shared Equipment and Processing Facilities with Grain Production:** One of the most important aspect of this project was finding out what equipment and processing needs there are for seed production and how the private sector, municipalities, and the conservation district could come together in order to share the necessary infrastructure to boost seed production. Since seed production is not a major crop as of yet in New Hampshire, tying together similar sectors together in order to share processing capabilities is needed. In order for this to occur, MCCD would be the entity to seek grant funds to accomplish these goals and

work out an arrangement with an available facility to place the processing facility and possible storage, such as Merrimack County or underutilized existing commercial facilities.

Some of this infrastructure already exists. MCCD has a no-till seed drill and a no-till corn planter. Several of the partnering farms have the necessary tractors and combines needed for harvesting. Processing, bagging, and storage are the greatest challenges for moving forward and the greatest need for fundraising.

5. **Necessary to Meet Legal Requirements:** Growing seeds, even if Variety Not Specified (VNS), has considerable legal requirements that involves the preservation of trademarks and intellectual property, labeling requirements, and testing for safety, especially if the grains go into the food system. In the Appendix, the document entitled “Legal Requirements” links the pertinent New Hampshire State Laws that dictate seed production and processing. Federal regulations will also need to be further explored.
6. **Need for Quick, Accurate Testing of Grains:** The University of Vermont has a certified testing laboratory for grains. In order to ensure the safety of the seeds produced, access to testing is necessary. A next step would be to create a relationship with UVM’s laboratory for testing. NHTI- Concord’s Community College is also interested in how their Sustainable Agriculture program and current facilities could be used to assist in testing and certifying grains.
7. **Start with Easily Grown and Easily Processed Grains:** As seen in the spreadsheet entitled “Cover Crop_Grain Varieties”, located in the Appendices, the seeds that would be most easily grown in our climate and processed would be barley, oats, rye, and wheat. In our Merrimack County test plots, rye grew the best. It was also the easiest to harvest and process the seeds. Rye is also the chosen cover crop for the farmers in our local area. Once the process is refined, other varieties could be added but, in the first phases, this study recommends building success with the crops that grow best, are easiest to harvest, and are readily desired by local agricultural producers.

NEXT STEPS

Below are the Next Steps determined by MCCD and partners.

1. Further build collaborations with farmers and organizations seeking to grow grains in New Hampshire. The needs of both groups are synergistic and could help build capacity that benefits both goals. This would include Sarah Cox and her research on artisanal grain production in New Hampshire, the consultant working on that project, Jessica Gorhan, and members of the Northeast Grain Hub.
2. Create a state-wide meet-up/ conference based on this idea to secure the necessary number of people needed to make buying the infrastructure necessary to share equipment and resources. MCCD intends to collaborate with NHTI- Concord's Community College and Sanborn Mill Farm in order to conduct this conference.
3. Begin writing grants to fund the necessary equipment needed to wash, dry, bag, and store seeds. Some equipment, such as combines, are owned by local farmers who can be contracted to complete that work.
4. Work with NHTI- Concord's Community Colleges Sustainable Agriculture students to look at the necessities of building a testing laboratory on campus that could meet the testing needs of potential seed growers.

ACKNOWLEDGEMENTS

The Merrimack County Conservation District wants to thank all of the partners who attended meetings and contributed to this project, including NHTI- Concord's Community College, UNH Cooperative Extension, Bohanan Farm, Sanborn Mill Farm, Merrimack County Farm, consultant Jessica Gorhan, and Sarah Cox of Tuckaway Farm in Lee, NH. The Merrimack County Conservation District also wants to thank all of the farmers we conducted individual interviews with, farmers and consumers who filled out our surveys, and the Merrimack County Conservation District staff, Steven Cook, Gabrielle Gardiner, and Noah Buckner, who assisted in survey collection.

We also thank Northeast SARE for funding this project and helping us fund this feasibility study that will hopefully lead to more shared facilities that will meet New Hampshire's agricultural needs into the future.

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APPENDICES

- Meeting Agendas and Minutes
- Surveys Created
- Survey Results
- Pros and Cons of Different Seed Varieties Potentially Grow in NH
- Equipment Needs Analysis
- Testing Equipment Needs
- Pertinent State of NH Regulations for Cover Crop Seed Production and Sale

Cover Crop Feasibility Study
January 25th, 2022 Meeting

Potential Attendees

Jessica Newnan, Merrimack County
Conservation District
Stacy Luke, Merrimack County
Conservation District
Si Robertson, Bohanan Farm
Ray Ramsey, Sanborn Mills Farm
Sarah Cox, NH Grain Cooperative
Jessica Gorhan, NH Grain Cooperative

Tracey Lesser, NH Technical Institute
Richard Smith, University of New
Hampshire
Olivia Saunders, UNH Cooperative
Extension
Carl Majewski, UNH Cooperative Extension
Chris Peterson, Merrimack County

Agenda

1:00 p.m.

Welcome, Introductions, Review of Goals of
the Project

- Welcome everyone! I'm Jess Newnan with the Merrimack County Conservation District. I'm really excited to get started on this project because the potential impact it could have is fairly revolutionary. If we are able to find a way to make this project feasible, it could open up new markets for our farmers, introduce a new selection of local food for our consumers, and make good use of municipal lands. I'm also excited for us all to work together as a team, to do some creative thinking and come up with some innovative solutions. I know I personally have a lot to learn from this project, so I'm looking forward to each of your input. It is important to me that I'm respectful of your time since I'm sure we all have a lot on our plates, so I'll just read the one sentence synopsis of the project that we put in the grant and then we'll do some quick introductions.
- Merrimack County Conservation District is partnering with local

1:20 p.m.

farmers and technical advisors to assess the feasibility of growing cover crop seeds on municipal and private lands, as well as the potential benefit of having a shared processing facility for seeds and grains.

- Go around the room with name, org., experience with cover crops or seed/grain production, what is most important to you about this project

2:50 p.m.

Logistics of Growing Cover Crop Seeds-Best Varieties to Grow, Growth Cycle, Nutrient Requirements, Water Requirements, Soil Health Practices, Additional Considerations

3:00 p.m.

● Best Varieties to grow in NH [Our Northern Grains – Northern Grain Growers Association](#) I'm putting together a spreadsheet.

- [Archived_NH_340_CoverCrop_Planting_Specs_Dec_2013_150113.pdf\(usda.gov\)](#)
- Growth Cycle-planting equipment-broadcaster vs grain drill
- Nutrient Requirements
- Water Requirements
- Soil Health Practices
- Harvesting Equipment
- Additional Considerations?

2:00 p.m.

Potential Production Capacity-Area Available, Yields of Different Varieties

2:20 p.m.

- Land Available
 - Merrimack County Complex
 - 20 acres?
 - Any other municipally owned land?
 - Other thoughts?
- Yields of Different Varieties
- Dr. Iago Hale-background in small grain production

Adjourn

- Germination testing, contamination testing
- Army Corps of Engineers
- NHTI
- UVM-grain testing lab
 - Heather Darby
- Valley Malt-Ground Up Grains
- Ray-other farm who sells to the distillery

Processing Infrastructure-Legal Concerns,
Space Needed, Necessary Equipment,
Processing Capacity

- What kind of equipment do we need?
 - [Grain-Processing-Equipment.pdf \(northerngraingrowers.org\)](http://northerngraingrowers.org)
 - Thresher-
 - Seed Cleaner-
 - Fanning Mill-
 - Spiral Cleaner
 - Gravity Tables
 - Grain Binder Threshing Machine
 - Combine-does threshing and binding
 - Grain dryer
 - Silo
 - FDA for milling into flour
 - Dump truck for transportation
 - Gravity Wagon?
 -
- Processing and Storage Space and Capacity
- Legal Concerns-variety not specified, food safety regulations, shared use facility regulations/certified kitchen
- Pricing of cover crop seeds
- Focus on storage
- - Grading and testing

Next Steps and Next Meeting Date

Cover Crop Feasibility Study
January 25th, 2022 Meeting

Attendees

Jessica Newnan, Merrimack County
Conservation District
Stacy Luke, Merrimack County
Conservation District
Si Robertson, Bohanan Farm
Ray Ramsey, Sanborn Mills Farm
Carl Majewski, UNH Cooperative Extension

Unable to Attend

Jessica Gorhan, NH Grain Cooperative
Sarah Cox, NH Grain Cooperative
Tracey Lesser, NH Technical Institute
Richard Smith, University of New
Hampshire
Olivia Saunders, UNH Cooperative
Extension
Chris Peterson, Merrimack County

Minutes

Welcome, Introductions, Review of Goals of the Project

- Project Synopsis: Merrimack County Conservation District is partnering with local farmers and technical advisors to assess the feasibility of growing cover crop seeds on municipal and private lands, as well as the potential benefit of having a shared processing facility for seeds and grains.
- Background for the project-Another conservation district wanted to produce pollinator seeds years ago, but the idea was put on hold. Last year Merrimack County was looking for ways to benefit local agriculture without creating direct competition, so the idea got brought back.
- We are also speaking with a group working on producing artisanal grains who might be interested in the facilities and infrastructure.
- Jessica Newnan-Merrimack CCD. Little experience with grains and cover crop seed production. Most excited about the potential impact of creating a new market and local food supply.
- Stacy Luke-Merrimack CCD. This project is bridging old ideas, new ideas, and seeing what the possibilities are.
- Carl Majewski-UNH Extension based in Cheshire County. Experience working with farms to grow cover crops and implement no-till practices. Interested in supporting producers and seeing where the shared infrastructure could benefit farmers interested in small grain production.
- Ray Ramsey-Farm manager at Sanborn Mills Farm. Currently getting started in grain production, growing for a local distillery (oats, wheat, rye, corn). Everything is open pollinated and seeds are saved to replant the following year (on 4th year of production).
- Si Robertson-Bohanan Farm. Not much experience in the way of producing grains or cover crop seeds, but plants a lot of cover crops, mostly winter rye and some legumes and Brassicaceae. Interested in the potential of what we can do and in being able to get a local supply of cover crop seeds.

Logistics of Growing Cover Crop Seeds-Best Varieties to Grow, Growth Cycle, Nutrient Requirements, Water Requirements, Soil Health Practices, Additional Considerations

- Jess is creating a spreadsheet with different cover crop varieties that are being used already in NH, along with their growing requirements.
 - https://docs.google.com/spreadsheets/d/1ka0kIvzQY8aRXH33gs4o4BQicA7Z3my_oeUoJzH1hI4/edit?usp=sharing
 - Already have barley, beans, buckwheat, millet, oats, peas, canola, rye, sorghum, soybeans, spelt, triticale, wheat, clover, and radish/turnip
- Are there any varieties missing from the list?
 - Hairy Vetch
 - Clovers-a few specific varieties are red clover and crimson clover
- Are there any considerations the we should be looking into that are not on the list?
 - Already have seeding rate, days to harvest, planting date, soil requirements, pest concerns, water requirements, harvesting equipment, processing equipment, yield, and other concerns
 - Needing to clean the seed and weeding would be a concern for all of them
- Are there any varieties that would be too difficult to do in NH?
 - Sorghum-used as an alternative forage crop or an alternative to silage corn. Could be problematic identifying a variety that would meet all farmers' needs because there are dozens with different qualities.
 - Clover-challenge to harvest, not generally grown around here. Seeds are small making it difficult to harvest.
- Are there any varieties that you would recommend based on experience?
 - Winter rye-widely used, productive
 - Most cereal grains-wheat, oats, barley-not as vigorous as rye but easy to grow
 - Most people are using a variety-not-stated rye
 - Oats-good follow-up to a corn crop
 - Buckwheat-easy to grow but harvesting is a challenge
- Other thoughts
 - Lionel Chute originally thought of the pollinator seed project, so he might be a good person to get involved in future meetings.
 - Wheat is a heavy feeder, so it will require fertilizer.
 - It will be important to look at nutrients for all varieties.
 - Once it thaws, we will be doing some soil testing for interested properties.
- Jess will continue to fill out the spreadsheet and send it out for feedback.

Potential Production Capacity-Area Available, Yields of Different Varieties

- Land interested in participating in the project
 - Merrimack County Complex-has land that they would like to get back into production, possibly looking at being a central location where farmers can clean and bag their seeds, maybe about 20 acres total, 5 acres that could be put into production this year on a trial basis
 - If other municipalities are interested, we could work with them.
- Shared-use facility interest

- o Any farmers who want to grow grains
 - o NH Grain Cooperative
- Is there anyone else that we should be including on the project?
 - o Dr. Iago Hale-UNH faculty member, crop breeder, background in small grain production, may have some expertise in how to handle the seed and quality testing
 - o Army Corps of Engineers-typically lease land with local farmers, but may have some that they would want to get involved
 - o NHTI-interested because of sustainable agriculture program, but also may be able to provide some testing in their lab space
 - o University of Vermont has a grain testing lab where they look at quality for human consumption, may be a good resource to learn how they are doing it, developed by Heather Darby

Processing Infrastructure-Legal Concerns, Space Needed, Necessary Equipment, Processing Capacity

- What kind of equipment do we need?
 - o Ray uses a grain binder and 1919 threshing machine.
 - o We will likely need a small combine which will do the threshing and binding.
 - o Silo
 - o Grain dryer
 - o Milling equipment-has to be FDA approved
 - o Dump truck or gravity wagon to transport grains
- Storage Considerations
 - o Insect and rodent-free area
 - o Moisture controlled
 - o Individual storage or everything in one silo?
 - NHTI might be able to help with storage
 - Merrimack County may have the capacity for storage
- Are there any facilities nearby that we may be able to learn from?
 - o Another farm sells to the same distillery as Ray. He will reach out to them.
 - o Valley Malt-Ground Up Grains in Hadley, MA works with farms all around the northeast to buy in grain, malt or mill it, and sell it
 - Run by Christian and Andrea Stanley
 - o There are a few in Vermont and Maine.
 - o On the seacoast, there is a group looking at doing artisanal grains through a value-added producer grant.
- Is equipment going to be shared equipment?
 - o This is something that we would have to figure out whether or not it is feasible.
 - o Depending on the scale it may make sense.
 - o It could be a concern that different producers will need it at the same time.
 - o Transportation could be an issue.
- What legal concerns do we have at this time?
 - o Testing for germination and contamination
 - o FDA certified equipment for milling
 - o Seed variety patents and intellectual property rights-variety not specified seeds

- Food safety regulations-shared use facility may have some regulations similar to a commercial kitchen
- What kind of entity would the shared-use facility be?
 - Part of the county
 - Its own business that is managed by the county
- Are there any points that we have not covered?
 - Pricing of cover crop seeds-would have to be competitive in order to be successful/feasible, can be hard at a small scale
 - Storage is going to be a major challenge.

Next Steps and Next Meeting Date

- Jess will continue to fill out the spreadsheet with cover crop varieties and send it out for feedback when it is done.
- Jess will send out a poll to determine a time for the next meeting.

Adjourn

Cover Crop Feasibility Study
February 15th, 2022 Meeting

Potential Attendees

Jessica Newnan, Merrimack County
Conservation District
Stacy Luke, Merrimack County
Conservation District
Si Robertson, Bohanan Farm
Ray Ramsey, Sanborn Mills Farm
Sarah Cox, NH Grain Cooperative
Jessica Gorhan, NH Grain Cooperative
Tracey Lesser, NH Technical Institute

Laura French, Meadowsend Consulting
Company
Richard Smith, University of New
Hampshire
Olivia Saunders, UNH Cooperative
Extension
Carl Majewski, UNH Cooperative Extension
Chris Peterson, Merrimack County

Agenda

2:00 p.m.

Growing Cover Crop Seeds-Existing and
Needed Resources, Define Roles and

2:10 p.m.

Responsibilities, Evaluate Production Capacity

- Who is responsible for growing and maintaining the fields?
 - Merrimack County Farm?
 - MCCD?
- How much land do we have available?
- Required Resources and Equipment
 - Seed
 - Soil Amendments
 - Tractor
 - Plow
 - Tiller
 - Grain Drill/No-Till Drill or Broadcaster
 - Manure Spreader/Wood Ash Lime Spreader
 - Tine Weeder
 - Sprayer if using pesticides
 - Combine
 - Dump Truck with Gravity Wagon
- What resources do we have available?
 - MCCD

Welcome and Check-in

- Wood Ash/Lime Spreader

- No-till Drill
 - County Farm?
- Production Capacity
 - Acres x 2000lbs

2:30 p.m.

Processing Facility and Storage-Existing and Needed Resources, Define Roles and Responsibilities, Clarification of Intent

- Who will be responsible for the processing facility?
 - MCCD?
 - Merrimack County Farm
 - Separate non-profit or grain co-op
- Where exactly will the processing facility be? How much space is there?
- How are we going to approach storage? How much space is there?
 - Bins, Silos, Bags
 - Communal or Individualized
- Would it make sense for the processing facility to serve as a co-op that pools grains from different farms or a rental facility that farmers can come in and use the equipment?
 - If co-op, how would we go about product sales?
 - If just for rental of equipment, how would it be made available?

2:50 p.m.

3:00 p.m.

- First come, first serve with time slots?
 - Training requirements?
 - Supervision required?
 - Farmers drop off grain to be process and receive notification when it is done?
- Resources Needed

- Drying Equipment
- Cleaning/Grading Equipment
- Milling Equipment
- Intake and Outlet

Next Steps and Next Meeting Date

https://doodle.com/poll/ad87t3mgcbsfibhy?utm_source=poll&utm_medium=link

Adjourn

Cover Crop Feasibility Study
February 15th, 2022 Meeting

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Company
Richard Smith, University of New
Hampshire
Olivia Saunders, UNH Cooperative
Extension
Chris Peterson, Merrimack County

Minutes

Welcome and Check-in

- Luke discussed the project with another conservation district who suggested the Moose Plate Grant as a potential funding source. Stacy suggested that it could be a potential funding source for Sanborn Mills Farm as well if they decide to install equipment for food grade milling.
- Luke mentioned that the group working on artisanal grains on the seacoast may be interested in working with Sanborn Mills Farm in some capacity.
- Newnan reported that she attended a webinar on food safety in grain processing facilities which provided a number of resources that will be used for this project.
- Ramsey mentioned the grain association in Vermont and how it would be great to have an association in New Hampshire.
- Luke suggested that MCCD could host a workshop to generate interest in this project, possibly at Sanborn Mills Farm.
 - Ramsey offered to help with scheduling the workshop at Sanborn Mills.

Processing Facility and Storage-Existing and Needed Resources, Define Roles and Responsibilities, Clarification of Intent

- What kind of an entity would the processing facility be/who is responsible for operations? (Co-op, third party non-profit, Merrimack County, MCCD)
 - Luke suggested that the facility could be one entity and if producers wanted to form a co-op that could be separate.
 - Ramsey pointed out that creating a granary would be difficult, particularly for a startup. Newnan added that a granary would require an immense amount of storage space and Ramsey added that quality control would be a concern.

- Ramsey asked for clarification of what processing equipment we are looking to implement. Newnan suggested dryers and seed cleaning equipment such as fanning mills and gravity tables.
- Ramsey indicated that the dryer, gravity table, and fanning mill would be most popular with producers.
- Newnan mentioned that the processing facility would need to have the drying and cleaning equipment for the cover crop seed production, but wasn't sure how popular the shared-use facility would be to local farmers without the added equipment to process grains for human consumption.
- Ramsey suggested that having mobile processing equipment that can be brought to each farm may be an easier solution than creating a processing facility. It would be more convenient to farmers to have smaller scale equipment that can go on a trailer from farm to farm than to bring grain to a central location.
- Introduction-Tracey Lesser from NHTI-Runs the Sustainable Agriculture program and is looking for ways to partner with and support farmers, students could possibly help with testing and the labs could potentially be set up to do the quality control testing needed.
 - Ramsey noted that it would be great to have a local testing facility
 - Lesser added that she doesn't need to make money off of the service, she would just need to cover the cost of payroll to have students perform the testing.
 - Newnan noted that the testing would include moisture levels as well as disease and toxin detection. This would allow farmers to sell for human consumption.
- Ramsey suggested that a feed mixer would be another piece of equipment that would be helpful to farmers.
- Newnan noted that she intends to talk to the county about what equipment they might already have that would not need to be purchased.
- Luke asked Majewski if he thought Cheshire County would have any interest in participating. He indicated that the facilities at the county farm are in use already. He suggested, however, that there might be some interest from farms in the area.
- Majewski pointed out that seed that is saved should be certified to show that it is of a high quality and safe for replanting. Newnan suggested that this could be another aspect of the testing provided by NHTI.
 - Lesser requested a list of the equipment that would be needed for the tests. She has access to a equipment sharing list where she can get used items.
- Newnan pointed out that mobile rental equipment would be a natural addition to the MCCD rental program. She questioned which regulations for food safety would be applied to mobile equipment.
- Who would be able to advise us on the regulations we would have to follow for mobile equipment?
 - Luke suggested Dave Russo at the NH Department of Agriculture, Markets, and Food who is the head of regulatory at this time.
 - Ramsey offered to share what he learns as he researches the regulations.
 - Majewski suggested talking to someone at the Bureau of Food Protection in the Department of Health and Human Services. He suggested Royann Bossidy.
- How would the logistics of the processing facility work in terms of scheduling, training, who is operating the machinery, etc.?
 - Training/Supervision

- Ramsey suggested that renters would need to go through a training and then there could be a person on call in case something goes wrong.
- Luke indicated that this was how other MCCD rentals are run.
- Equipment
 - Can no-till drills and planters could be used for more than corn?
 - Majewski indicated that the seed drill could be used for small-seeded crops, small grains, possibly soybeans, and that the corn planter is used specifically for corn.
 - Luke mentioned that one farmer had used the corn planter for larger seeds like squash or sunflowers.
 - Ramsey pointed out that new planters use air rather than plates, but older planters use plates and can plant beans, squash, corn and sunflowers.
 - Will we need more than one of each type of equipment?
 - Ramsey suggested that one of each type of equipment will likely be enough to start.
 - Ramsey suggested adding a grain elevator or auger to the list of equipment.

Other Thoughts

- Luke asked who we could invite as speakers to a workshop or twilight event to generate interest in the project.
 - Majewski offered to speak from the production side of the equation, and suggested including potential customers to inform farmers about what they are looking for in a product. Ramsey agreed that this would be helpful.
 - Newnan suggested seeing if someone from Valley Malt could participate. She also mentioned a group hosting a grain CSA that may be able to provide some guidance.
 - Majewski mentioned a bakery in Keene that has their own mill.
 - Luke mentioned a bakery in the Portsmouth area that is working with Sarah Cox on the artisanal grain project. Newnan suggested that Cox might have some advice as well.
 - Ramsey indicated that Sanborn Mills would be open to this workshop and that they would be able to provide some demonstrations.

Next Steps and Next Meeting Date

- Newnan will send out a doodle poll to determine the next meeting date.

Adjourn

Cover Crop Feasibility Study
March 11th, 2022 Meeting

Able to Attend

Jessica Newnan, Merrimack County
Conservation District
Stacy Luke, Merrimack County
Conservation District
Ray Ramsey, Sanborn Mills Farm
Chris Peterson, Merrimack County
Jessica Gorhan, NH Grain Cooperative

Unable to Attend

Iago Hale, University of New Hampshire
Lionel Chute, Sullivan County Conservation
District
Sarah Cox, NH Grain Cooperative
Si Robertson, Bohanan Farm
Tracey Lesser, NH Technical Institute
Carl Majewski, UNH Cooperative Extension

1:10 p.m.

Agenda

- Introductions
 - Jessica Newnan-Merrimack County Conservation District Local Food Coordinator, organizing the cover crop seed feasibility study.
 - Ray Ramsey-Sanborn Mills Farm Manager, grows grains-corn, wheat, oats, rye-using draft power.
 - Jessica Gorhan-Food Systems Consultant working with Tuckaway Farm, Doo-Bee-Doo Farm, and Big Scott's Local Grown evaluating the opportunity for a NH Grain Collaborative and see if there is a market for locally grown grains.
 - Chris Peterson-Director of Facilities for Merrimack County interested in reintroducing ag to the county farm including vegetable production for the nursing home, Department of Corrections, and community distribution and potentially cover crop seed production for local farmers.
 - Stacy Luke-District Manager of Merrimack County

1:20 p.m.

Welcome and Check-in

Conservation District. This was an idea that several counties had a while ago, but with the difficulty getting cover crop seeds it became a timely project to see if we could grow some of our own. There has been interest in the artisanal grains side of the project as well.

Parameters of a Market Survey for Producers

- Newnan suggested dividing the market survey for producers into two sections, one related to cover crop seeds available for purchase from the county and one for producing their own seeds or grains. She suggested the following questions for each part of the survey.
 - Cover Crops
 - What varieties would you be interested in?
 - Seed or Grain Production
 - What equipment are you interested in?
 - What would you need for support?
- Gorhan informed the group that she had a questionnaire put together that she had been using with producers which she would be glad to share. She mentioned that she was working on a questionnaire for buyers as well.
- Newnan mentioned that the market survey would be distributed out through the MCCD newsletter list.
- Gorhan suggested collaboration on the purchaser survey as we are both looking to develop a similar set of questions including the topics of price point, quality, scale, and varieties.
- Peterson mentioned that there are large plots of fallow land which could be opportunities for farms to come in and

- plant grains if the owner is willing to lease the property.
- Gorhan added that part of her questionnaire asks whether they have access to land.
 - Luke mentioned that the group had previously discussed hosting a meet and greet with purchasers at Sanborn Mills Farm when the weather warms up in order to learn what they are looking for in a product. She also brought up that NHTI has lab space that they have offered up for potentially putting together a testing facility for grains since the closest one is at UVM.
 - Ramsey confirmed that the UVM was the only facility he knew of that did certified testing of grain in the area.
 - Newnan added that she was working on a list of equipment NHTI would need and that she would be reaching out to UVM for more information. She asked if Gorhan had discussed testing with the farmers she was working with.
 - Gorhan said that she had not yet delved into that topic with her farmers.
 - Newnan explained that there are different tests for different markets. Generally, mycotoxin and aflatoxin tests are required as well as test weight, but that bakers will want to see a falling number test and possibly grain protein. She added that if producers are selling seeds they require a purity test and noxious weed test as well as a germination test.
 - Peterson suggested adding a question about annual demand for cover crop seeds.
 - Newnan suggested adding a question of price point.
 - Ramsey added that a question about what time of year farmers need cover crop seeds.
 - Peterson agreed pointing out that timing would impact the need for storage.
 - Gorhan mentioned that she was asking farmers about harvesting, processing, and storage equipment in her questionnaire.
 - Newnan suggested adding a similar question to the Seed or Grain Production section of the survey.

2:00p.m.

- Gorhan brought up questions from her list that asked about scale and current threats. She suggested adding a question about how much of the processing work they are interested in doing themselves.
- Newnan suggested asking about what market they would be interested in selling to.
- Gorhan mentioned that she is asking farmers about any unused equipment or storage they may have as well. She suggested that sharing contacts might be a good way to conduct the survey so that two people named Jessica are not calling the same farmers with the same questions. She suggested setting up a meeting to coordinate this.
- Newnan added that the survey would be sent out virtually as well, so sharing contacts might help facilitate the distribution.
- Luke mentioned that farmers are more likely to answer a text or a call than do an online survey. She added that doing a round table discussion might be a good opportunity to do the survey.
- Peterson asked if there is funding available to make this a viable project.
- Newnan responded saying that there are grant opportunities and that they would be discussed as part of this project.
- Peterson indicated that the county has a 1948 Farmall tractor and a small John

Deere as well as a 48” cultivator, but not much else. He has some funding for equipment for the county’s ag projects.

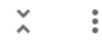
- Newnan suggested meeting with Peterson at some point to discuss what the county’s needs would be to pursue this project.
- Gorhan mentioned that the grant she is working off of allows for a second application for implementation which would allow for some funding for equipment.
- Luke mentioned doing a test plot on the county’s land which could serve as a trial of the project for this growing season while the feasibility study is being conducted.
- Peterson agreed that this would be possible and that meeting with John Silver to discuss it would be the next step.

Adjourn

New Resources to Look Into

- [Adaptive Ag](#) out of Maine

Consumer Survey



Form description

Email *

Valid email

This form is collecting emails. [Change settings](#)

Your Name *

Short answer text

Choose which describes you: *

- Home Baker/Consumer
- Bakery
- Restaurant
- Distillery
- Brewery
- Other...

Do you already purchase local seeds or grains? *

- Yes, local seeds.
- Yes, local grains.
- Yes, both.
- No.

After section 1 Continue to next section



New Consumer



Description (optional)

Would you be interested in purchasing local seeds or grains?

- Yes, I'm interested in local grains.

Yes, I'm interested in local seeds.

Yes, I'm interested in both.

No.

After section 2 Continue to next section



Local Seed and Grain Interest



Description (optional)

What kind of products are you interested in? Check all that apply.

Vegetable and Herb Seeds

Flower Seeds

Cover Crop Seeds

Whole Grains

Flour

Grits

Meals

Dry Beans and Peas

Rolled Oats

Oatmeal

Other...

How much would you be interested in purchasing at a time? Check all that apply.

Seed packets

Less than 1lb

1-5lbs

5-10lbs

10-20lbs

20-50lbs

50-100lbs

100-200lbs

More than 200lbs

Other...

How often would you likely purchase local seed and grain products? Check all that apply.

As a treat

As needed for personal consumption

As a special for my business

Every week

Every two weeks

Every month

Every few months

Semi-annually

Once per year

Other...

How much of a premium would you be willing to pay for a local product?

None

Less than \$1 per pound

\$3 per pound or less

\$5 per pound or less

\$8 per pound or less

\$10 per pound or less

Any amount

Other...

What qualities would you be looking for in a local product?

Organic

Conventional

Falling Numbers

Protein Content

Variety

Other...

What might prevent you from purchasing a local grain product?

Long answer text

After section 3 Continue to next section

Feasibility Study Participation



Description (optional)

Are you interested in participating in the conversation on local seed and grain production in New Hampshire? *

Yes

No

Is there anyone you suggest we include in the conversation?

Short answer text

Additional Comments

Long answer text

Producer Survey



Form description

Email *

Valid email

This form is collecting emails. [Change settings](#)

Your Name *

Short answer text

Farm Name *

Short answer text

Are you interested in purchasing cover crop seeds from a local source? *

Yes

No

After section 1 [Continue to next section](#)

Cover Crop Interest



Description (optional)

What varieties of cover crops would you be interested in purchasing either on its own or as part of a mix? Check all that apply.

Oats

Rye

Clover

Wheat

Barley

Beans

Peas

Buckwheat

Millet

- Canola
- Sorghum
- Soybeans
- Spelt
- Triticale
- Radish
- Hairy Vetch

How many pounds of cover crop seeds do you generally buy each year?

Short answer text

How much do you typically pay for a 50lb bag of seed?

Short answer text

What time(s) of year do you need cover crop seed?

Short answer text

After section 2 Continue to next section

Seed and Grain Production



Description (optional)

Do you currently produce seeds or grains? *

- Yes, I produce seeds.
- Yes, I produce grains.
- Yes, I produce both seeds and grains.
- No, I don't produce either.

After section 3 Continue to next section

Seed and Grain Production Interest



Description (optional)

Are you interested in starting to grow grains or seeds?

- Yes, I'm interested in producing seeds.
- Yes, I'm interested in producing grains.
- Yes, I'm interested in producing both seeds and grains.
- No.

After section 4 Continue to next section



Seed and Grain Production Support



Description (optional)

How much land would you want to dedicate to seed or grain production?

Short answer text

What would you need for support to get started?

Long answer text

If there were shared use equipment available for rent, what pieces would you find helpful? Check all that apply.

- Harvesting Equipment
- Cleaning Equipment
- Dryers
- Grain Auger
- Packaging Equipment
- Other...

What markets would you be interested in selling to? Check all that apply.

- Whole Grain
- Processed Grain (flour, cornmeal, rolled oats, etc.)
- Seeds
- Direct to Consumer
- Wholesale
- Cooperative
- Other...

What challenges would you face if you started growing grains or seeds?

Long answer text

After section 5 Continue to next section

Current Production Support



Description (optional)

How much land do you have dedicated to seed or grain production?

Short answer text

What support could help you?

Long answer text

If there were shared use equipment available for rent, what pieces would you find helpful? Check all that apply.

- Harvesting Equipment
- Cleaning Equipment
- Dryers
- Grain Auger
- Packaging Equipment
- Other...

What markets do you sell to, or would you be interested in selling to? Check all that apply.

- Whole Grain
- Processed Grain (flour, cornmeal, rolled oats, etc.)
- Seeds
- Direct to Consumer
- Wholesale
- Cooperative
- Other...

What challenges do you face?

Long answer text

After section 6 Continue to next section

Feasibility Study Participation



Description (optional)

Are you interested in participating in the conversation on seed and grain production in New Hampshire? *

- Yes
- No

Is there anyone you suggest we include in the conversation?

Short answer text

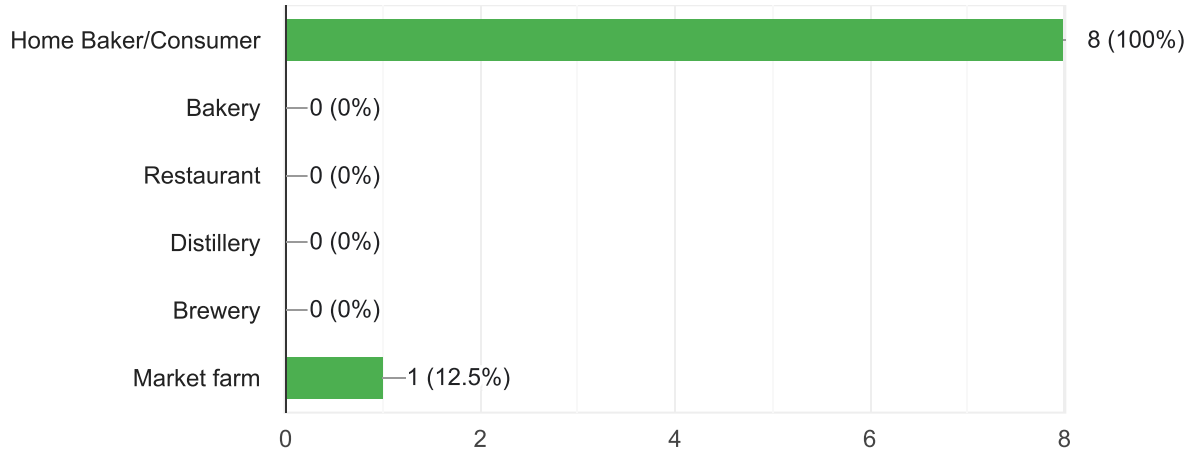
Additional Comments

Long answer text

Choose which describes you:

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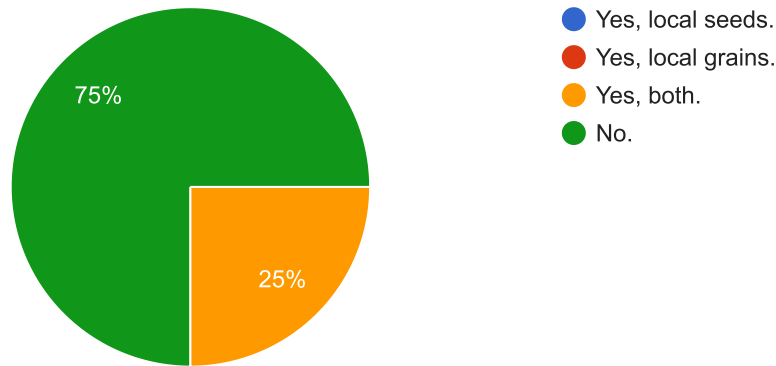
8 responses



Do you already purchase local seeds and/or grains?

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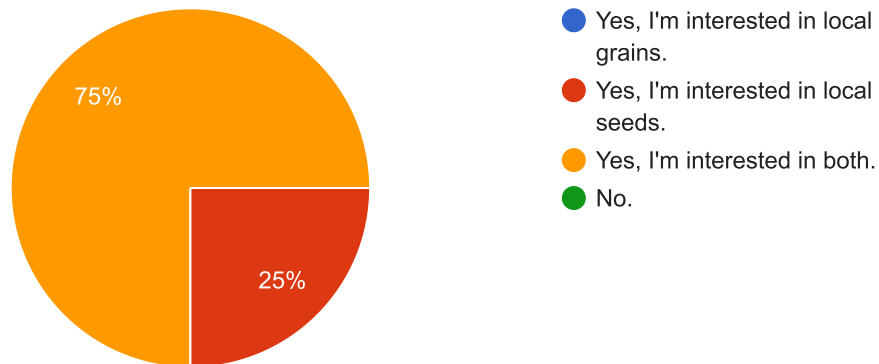
8 responses



Would you be interested in purchasing local seeds or grains?

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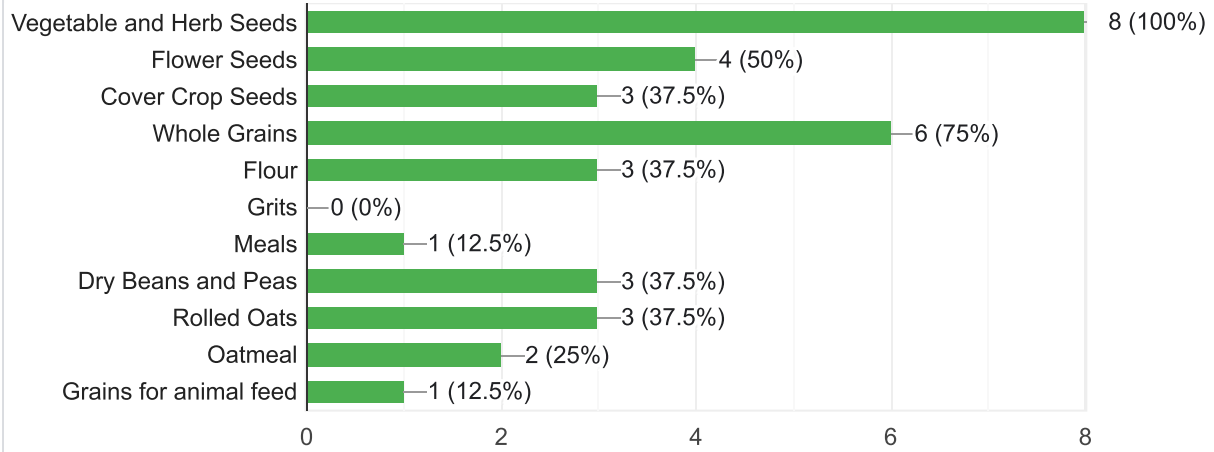
8 responses



What kind of products are you interested in? Check all that apply.

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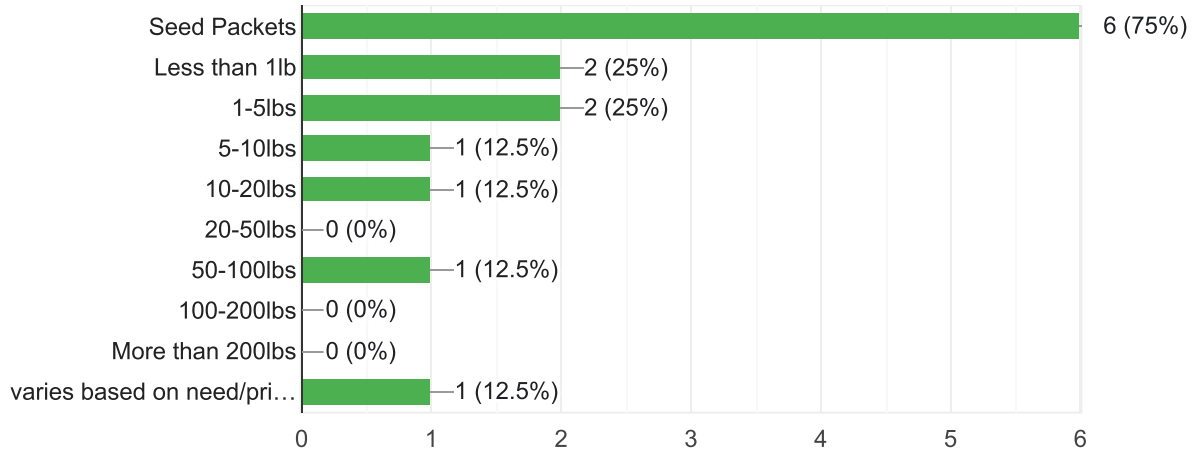
8 responses



How much would you likely purchase at a time? Check all that apply.

 Copy

8 responses

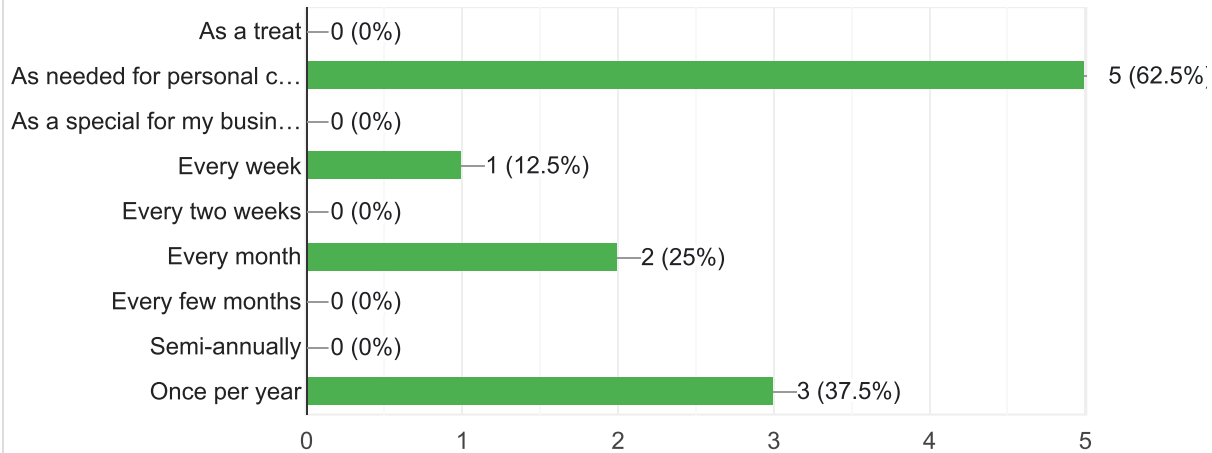


How often would you likely purchase local seed and grain products?

 Copy

Check all that apply.

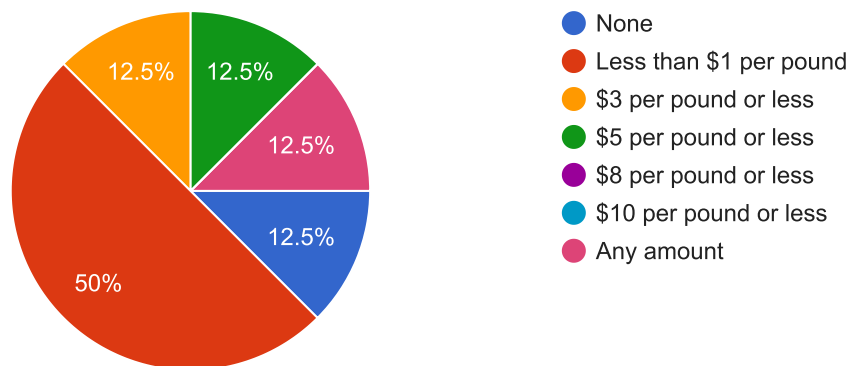
8 responses



How much of a premium would you be willing to pay for a local product?

 Copy

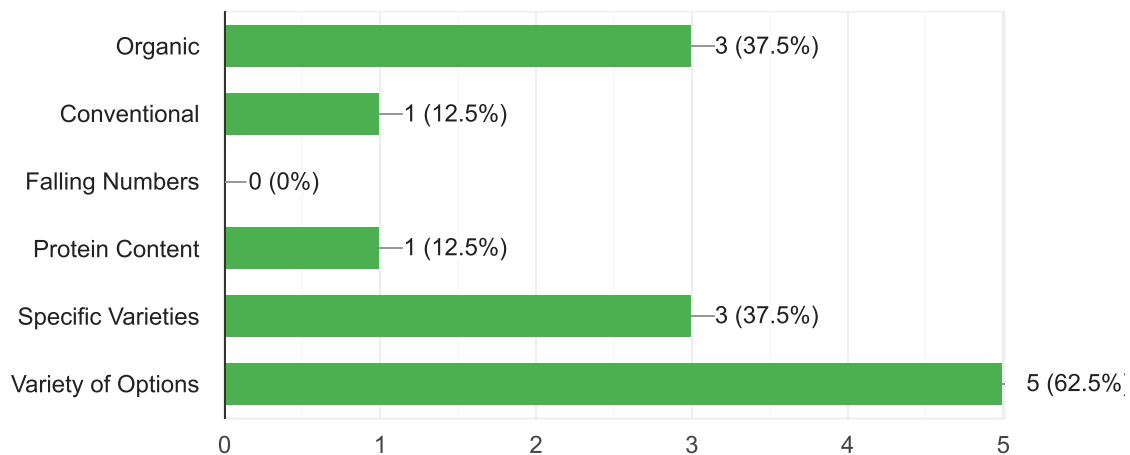
8 responses



What qualities would you be looking for in a local product?

 Copy

8 responses



What might prevent you from purchasing a local grain product?

5 responses

pickup location/lack of delivery, quality, consistency of product, lack of variety etc

Cost

availability and driving distance

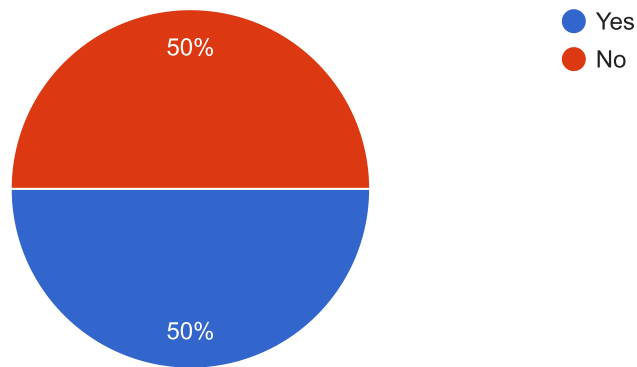
Space to plant at home, price, my own dietary restrictions

space to plant at home, price, my own dietary restrictions

Are you interested in participating in the conversation on local seed and grain production in New Hampshire?

 Copy

6 responses



Is there anyone you suggest we include in the conversation?

3 responses

Other small market farms

Local farms, low-income citizens/locals who would benefit from growing their own crops-find their needs

local farmers, low-income citizens/ locals, who would benefit from growing their won crops & find their needs.



Additional Comments

3 responses

This is wonderful.

Large need for local grain for animal feed.

Local organic buckwheat would be amazing!!

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Google Forms





Producer Survey

Questions Responses 1 Settings

1 response

 [Link to Sheets](#)



Accepting responses

Summary

Question

Individual

Your Name

1 response

Chris Peterson

Farm Name

1 response

Merrimack County Farm

Email

0 responses

No responses yet for this question.

Zip Code

0 responses

No responses yet for this question.

Cover Crop_Grain Varieties.xlsx

Variety	Seeding Rate/Acre (lbs)	Seeding Depth (in.)	Days to Harvest	Planting Date	Soil Requirements	Pest Concerns	Water Requirements	Weed Control	Harvesting Equipment	Processing Equipment	Yield/Acre	Other Concerns	References
Barley	120-160	1-2	90-100	Early spring or fall	Moderate, sandy or well-drained loam.	Bacterial blight, basal glume rot, barley stripe, barley yellow dwarf, root rot, covered smut, downy mildew, ergot, eyespot, fusarium, loose smut, net blotch, powdery mildew, aphids, armyworms, barley mealybug, wireworms, leaf scald	Moderate, too wet will stunt growth but also drought prone Too wet and they will rot, not enough water leads to decrease yield	Tine weed after seeding but before seedlings pop up	Combine	Debearder, seed cleaner, grain dryer or bin with aeration floor, dehulled if for human consumption	2000	Can be intercropped with field peas 1:3 (peas:barley).	Barley Diseases and Pests, Description, Uses, Propagation (psu.edu)
Beans	60	1-2	60-90	After frost danger, June	Well-drained, sandy or loamy soils, pH 6-7	Root rots and fungi, especially if wet		Tine weed after first leaves appear	By hand or bean puller Swath then combine when 70-75% of seeds are brown and most leaves are gone while plants are damp	Dried, shelled, then graded	1500-1800 lbs	Need to be weeded for clean harvest	
Buckwheat	35-60	0.5-1.5	70	Shortly after frost danger is past Late in season, after soil temp above 65, June or July	Does well in any soil	Few, sometimes root rot	Will wilt in dry weather	Kill weeds ahead of planting		Dry, thresh, winnow, mill if turning into flour	1440-1920		Buckwheat (purdue.edu)
Millet	20-35	0.5	70-90		Well-drained, pH 5.6, moderately fertile	Head smut and kernel smut, birds, grasshoppers	Drought tolerant	Cultivation during early growth	Combine	Threshed then dehulled, milled if used for flour	2500	Cross pollinate, can be interseeded, poor weed competition	Millets (purdue.edu)
Oats	100-125	0.5-1.5	84	Early spring, March or early April	Well-drained, minimal added fertilizer, high OM and mineral content Well-drained and low salt, need high manganese, potassium, and phosphorus Extra NPK and Boron application, pH 6-6.3, can tolerate salinity Any soil, can be over fertilized	Leaf or crown rust, aphids	Water intensive	Mostly outcompete weeds, but early season tine weeder should be enough	Combine	Screen Cleaner, Huller, Aspirator, Carter Disc, Paddy Table, Steamer, Roller Mill.	2200-2600	Can be intercropped with red clover or field peas (3:1 oats:peas), utilize straw as a byproduct	
Peas	100-175	1-3	80-100	Mid-April to early May		Fusarium and Sclerotinia, root rot	Will die if water-logged	Before emergence or very shortly thereafter	Swath then combine	Grain Dryer	3400	Can be interseeded with other crops	Field Pea Production (montana.edu)
Canola	5-8	0.25-0.75	90-100	Spring or Fall		Flea Beetles, Cutworms, European Corn Borer, birds, white mold	Not too wet, not too dry, not too hot	Tine weed before emergence Kill weeds ahead of planting	Swath, or direct combine	Grain Dryer, Oilseed press Fanning mill and gravity table	1200-1500 1960-2240	Can be interseeded with other crops Test for ergot before processing	Canola (Rapeseed) (purdue.edu) Rye (wisc.edu)
Rye	150-200	1-2	330-345	September		Ergot	Moderately dry soil	Kill weeds ahead of planting, cultivate is grown in wide rows	Combine			Long growing season needed, weeds can be a problem, many varieties for different purposes Wheat grows well following a soybean crop	Harvesting Quality Grain Sorghum - National Sorghum Producers (sorghumgrowers.org)
Sorghum	5-20	0.5-1.5	90-120	After danger of frost, early June	Fertilize similar to corn, soil pH of 6.0	Seed rot, northern corn leaf blight, birds, corn earworms, aphids, wireworms	Low, but drought will make plant go dormant	Kill weeds ahead of planting, cultivate is grown in wide rows	Swath then combine	Dried and seed-cleaner	4000		
Soybeans	90-160	1-2	100	June	pH 6-7.5, high P and K, loam pH 6-7.5, low fertility, poorly drained, similar fertilization to wheat but be careful of N	White mold, aphids	Consistent moisture	Before seedlings are 6in tall Tine weed and cultivate between rows post-emergence	Combine	Seed-cleaner	2000-3000		
Spelt	80-100	1-2	100-110	mid-April and mid-September		Fusarium	Moderate	Tine weed and cultivate between rows post-emergence	Combine	De-hull	2400		
Triticale	100	1-2	97-127	April and September	pH 5.5-6, adequate N and P, not too much N	Ergot	Drought-resistant	Tine weed and cultivate between rows post-emergence	Combine	Seed-cleaner and dryer	2500-3000	Can be interseeded with another crop, test for ergot before processing	
Wheat	150	0.5-1.5	90-120	mid-September, early April	Heavy feeder, well-drained, N heavy 70lbs of available nitrogen, 3-4%+ OM	Fusarium, Hessian fly if planted too early, eyespot foot rot, leaf rust, loose smut, powdery mildew, seedling blight, Septoria tritici blotch, Stagonospora nodorum blotch, Stinking smut, tan spot, wheat spindle streak mosaic, yellow dwarf	Moderate	Tine weed and cultivate between rows post-emergence	Combine	Dryer and screen cleaner Dryer and rotary screen cleaner, fanning mill, possibly specialty equipment	2000		2012-Weed-Wheat-Report.pdf (northernraingrowers.org)
Clover-Red, Crimson,	8-10	0.25-0.5	90-120	Spring or Fall	pH 6.1-6.7, fertilize 6 months prior to planting Similar to canola, some N but not too much	Alfalfa mosaic virus, red clover mosaic virus, Aphanomyces root rot, clover rot, common leaf spot, root rot, Alfalfa weevil	Moderate	Spot weed the fields by hand or with a sickle	Combine		300	Red clover-harvest in the second year, cut for hay in first year just after blooms appear.	Organic Farming - YouTube
Radish or Turnip		0.25-0.5		Early spring		Flea beetle, cabbage fly, slugs			Combine				
Hairy Vetch	25-35	0.5-1.5	90-330	Spring or Late summer	Best on loamy or sandy soils, no extra N needed, pH 6	Root rot, black stem, gray mold, downy mildew, root-knot nematodes, pea aphid, cutworm, corn earworm, fall armyworm, vetch bruchid, grasshopper, lygus bug, leafhopper	Moderate, not drought-resistant		Combine-lower speed and remove some concave and cylinder bars	Cleaned immediately, separated from rye (if intercropped) with spiral seed separator		Intercrop with a cereal grain	Hairy Vetch (purdue.edu)

Stage	Cultivating	Planting	Maintenance	Harvesting	Cleaning	Processing	Storage	Transportation	Supplies	Testing	
Equipment/ Resources	Plow	No-tilt drill?	Sprayers/Spreaders?	Combine	Rotary Screen Cleaner	processing toaster	Bagging machine?	Gravity Wagon	Cleaning Supplies	E. Cummings Coop Testing Laboratory Northwest Crops and Soils Program The University of Vermont (uvm.edu)	
	Tiler	Grain drill?	Tine-weeders/interrow cultivators	Grain Auger	De-hulling machine	bagging, packaging, and labeling equipment	Silo	Dump Truck	Fertilizers	Moisture Meter DICKEYjohn LG Dole400B Moisture Handbook (usda.gov)	
		Broadcaster/manure spreader?	Irrigation?		Fanning Mill	Grain Dryer			Soil Amendments	Grain Test Weight Grain Test Weight Scale WS100 - Shop (shoupparts.com)	
		Corn planter with converted finger pickups?			Spiral Cleaner				Applications?	Falling Numbers The Falling Numi Lab Mill Falling Number Accessories Directive 9180-38 (usda.gov)	
					Gravity Table				minivault	Grain Protein GrainSense Hany Penen IM5500 P Grain Protein Tester From Cross Grain Handling Solutions (crossco.com)	
										Germation	
										Alfatoxin	
										Vomoxin	Mycotoxin Handbook (usda.gov)
											Grain Moisture Testing Equipment AnPoint Precision
											Producing Certified Seed (ndsu.edu)
											Grain Cleanliness, Testors & Analysis: Feed & Grain Buyers Guide (feedandgrain.com)
										Federal Grain Inspection Service Agricultural Marketing Service (usda.gov)	
										Purity Test	
										Noxious Weed Test new_hampshiresummary.pdf (nationalstanboard.org)	

Types of Analysis

- Moisture
- Test Weight
- Whole Grain Protein
- Falling Number
- Germination
- Aflatoxin
- Vomitoxin (DON)

Equipment

- Moisture Tester
 - [DICKEY-john | GAC 2500-UGMAA® grain analysis computer](#)
 - % Moisture
 - Test Weight
 - Temperature
 - Dole400B
- Grain Test Weight Scale
 - [Grain Test Weight Scale | Hoffman Manufacturing \(hoffmanmfg.com\)](#)
 - [Grain Test Weight Scale WS100 - Shoup \(shoupparts.com\)](#)
- Falling Number Test
 - Lab Mill

- Scale
- Shakematic
- FN Machine
 - [Perten Falling Number Systems | PerkinElmer](#)
 - [Falling Number Equipment – Prairie Ag Products](#)
- Cooling Tower
- Distilled Water and Pump
- Test Tubes and Stoppers
- Grain Protein Tester
- Germination
- Aflatoxin
- Vomitoxin (DON)
 - Incubator
 - Test Kits
 -

Cover Crop Seed Production and Sale

- NH
 - [Labeling](#) See Section II and possibly III
 - [Prohibitions](#)
 - [Records](#)
 - Have to keep lot records for 2 years
 - Have to keep a sample from each lot for 1 year
 - [Exemptions](#)
 - [Licensing](#)

Processing Facility

- NH
 - [Labeling](#) See Section II and possibly III
 - [Prohibitions](#)
 - [Records](#)
 - Have to keep lot records for 2 years
 - Have to keep a sample from each lot for 1 year
 - [Exemptions](#)
 - [Food Safety](#)