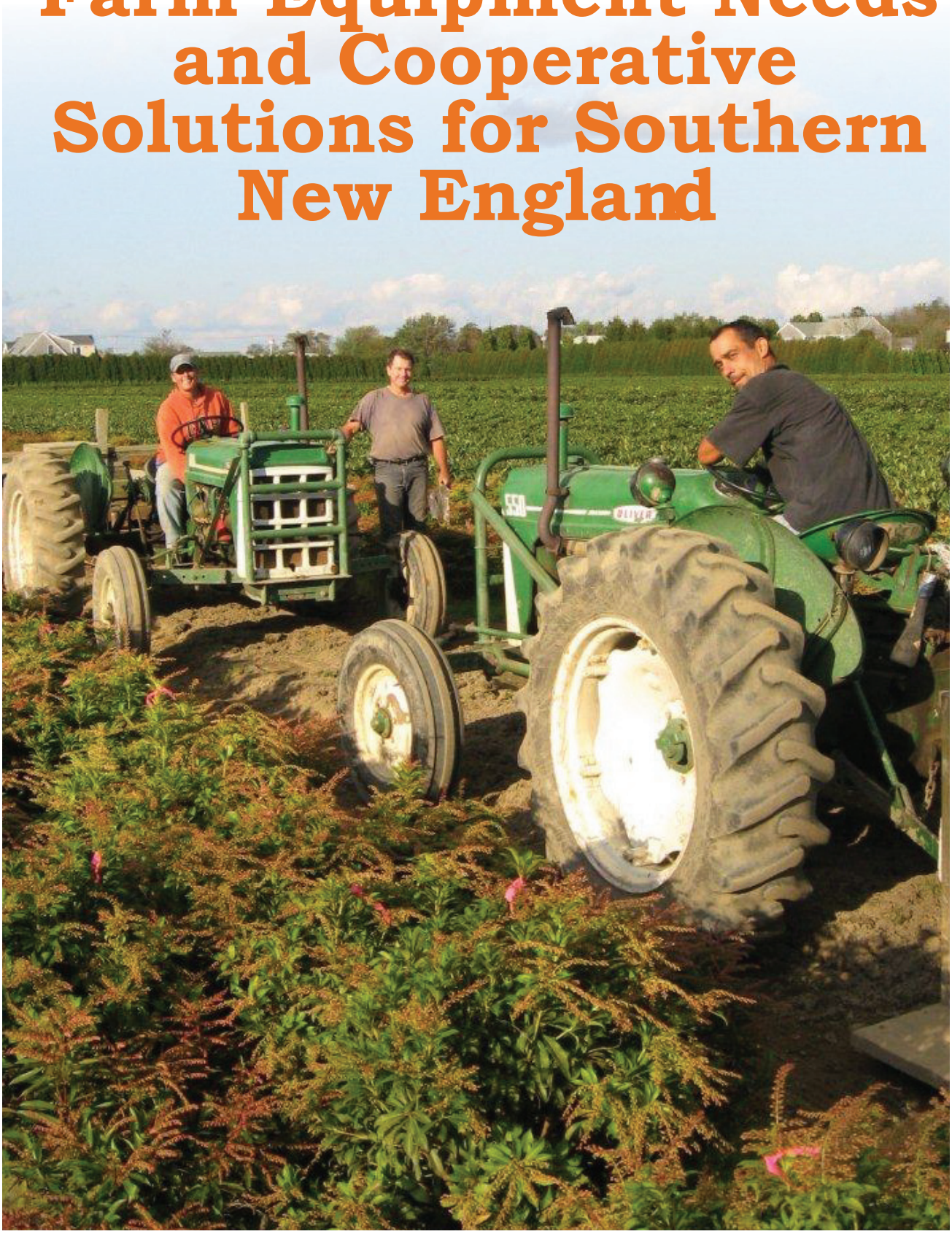
Farm Equipment Needs and Cooperative Solutions for Southern New England



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Background

Access to equipment and capital to purchase equipment are serious limiting factors for beginning and existing farms in Southeastern New England. It can be very difficult for farmers to get loans for expensive items, and grant funding for purchasing equipment is rare and difficult to secure. Since most farms in this region are fairly small, it often doesn't make financial or practical sense to buy items that are used infrequently, even if they could provide enormous time, labor and money saving benefits.

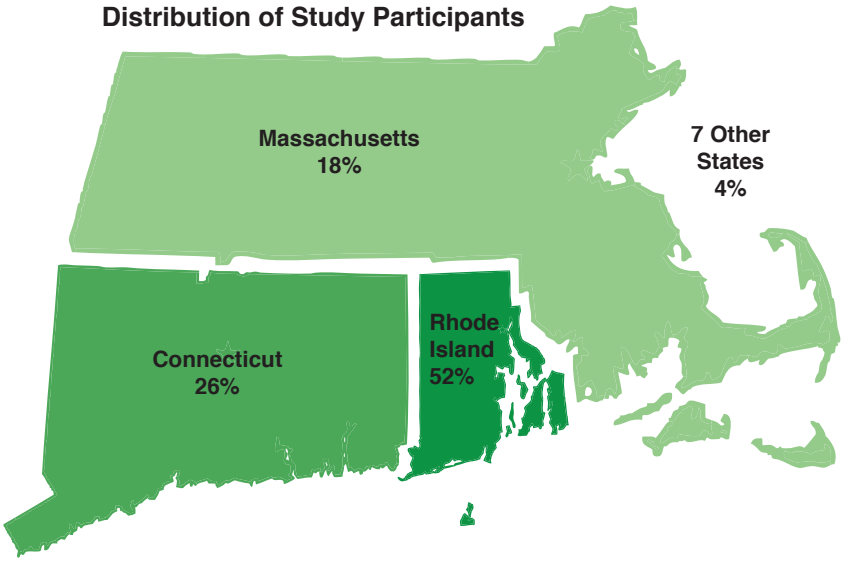
Could a shared-use equipment bank help area farmers keep their businesses financially viable? The Farm Equipment Bank Feasibility Study was designed to answer this question by asking farmers what equipment they would like to see available, what equipment, if any, they owned and would be willing to rent or custom operate for others, and what their biggest concerns would be with shared-use equipment.

Surveys and conversations with over two hundred farmers show that decentralized equipment sharing/rental systems developed from the bottom up are likely to be more effective than one centralized, third party rental agency. After taking into account concerns with the internal functions of an equipment bank (such as time sensitivity, maintenance and scheduling), several external factors point towards decentralization: 1) equipment demand is spread over many items and spread geographically rather than focused on a general set of implements sought by many farmers; 2) transportation of large equipment is extremely expensive, driving up the cost of renting equipment across a large area; 3) a significant number of items in demand are already available at construction and landscaping rental agencies. These rental agencies are often prohibitively expensive for farmers, and so a shared-use equipment scheme must have lower overhead operating costs than a third party rental agency.

Survey Results

See Appendix A for the survey questionnaire.

Distribution of Study Participants

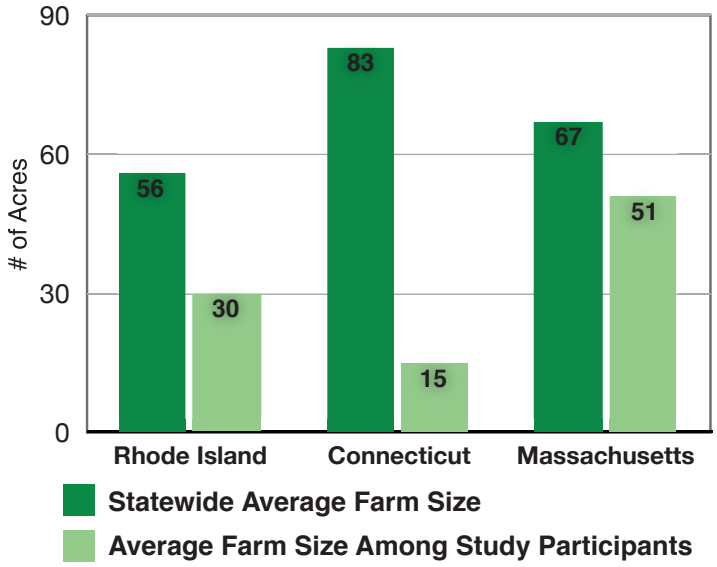


How many people participated?

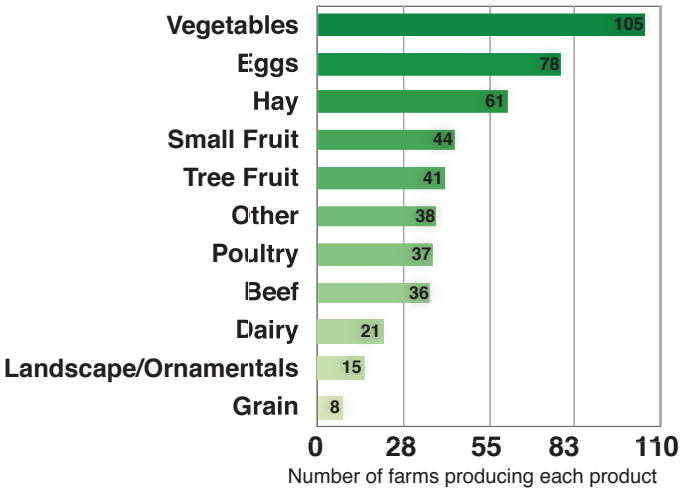
Two hundred and sixteen farmers contributed to the study, making a total of 514 equipment requests, representing approximately 90 different items after accounting for duplicate requests under different names. Participation in the study took place through three channels: an online survey, phone calls and face-to-face interviews.

Of the 216 respondents, only 3 said they would NOT participate in an equipment rental system. Two of these were farms with particularly high bio-security risks, and the third was a farm that has not quite begun farming yet. This number is encouraging, but it should be noted that farmers with an interest in equipment sharing were more likely to participate in the study as the resources were not available to collect a truly unbiased sample of all farmers in the area.

Average Farm Size of Study Participants



Products Produced by Participating Farms



Most farms produce more than one type of product

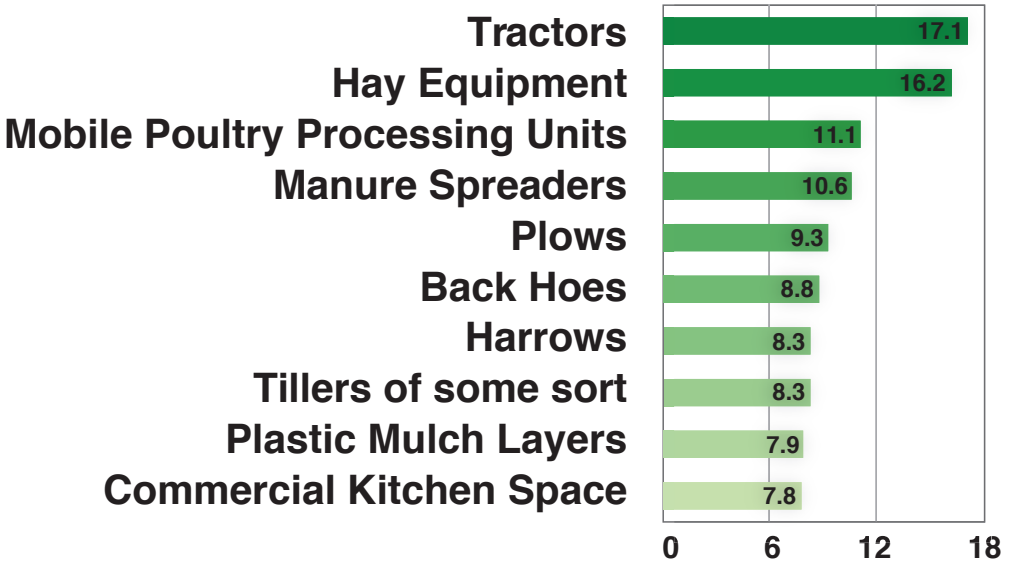
Who participated in the study?

Smaller, less established farmers are more likely to participate in an equipment bank program. Furthermore, vegetable farmers are more likely to participate than, say, dairy or turf farmers due to the nature of the equipment required. This is reflected in the makeup of the study participants: in Rhode Island, for example, 54% were beginning farmers, compared to only 40% beginning farmers in the general population according to the 2007 USDA Census of Agriculture[1]. The average farm size among study participants was smaller than the overall state averages in each of the three states surveyed[2]: the average farm size in Rhode Island is 56 acres, but the average farm size of study participants from RI was only 30 acres. Likewise, the average acreage of study respondents from Connecticut was 51 acres, while the overall average is 83 acres, and in Massachusetts the average among study respondents was only 15 acres while the overall average is 67 acres.

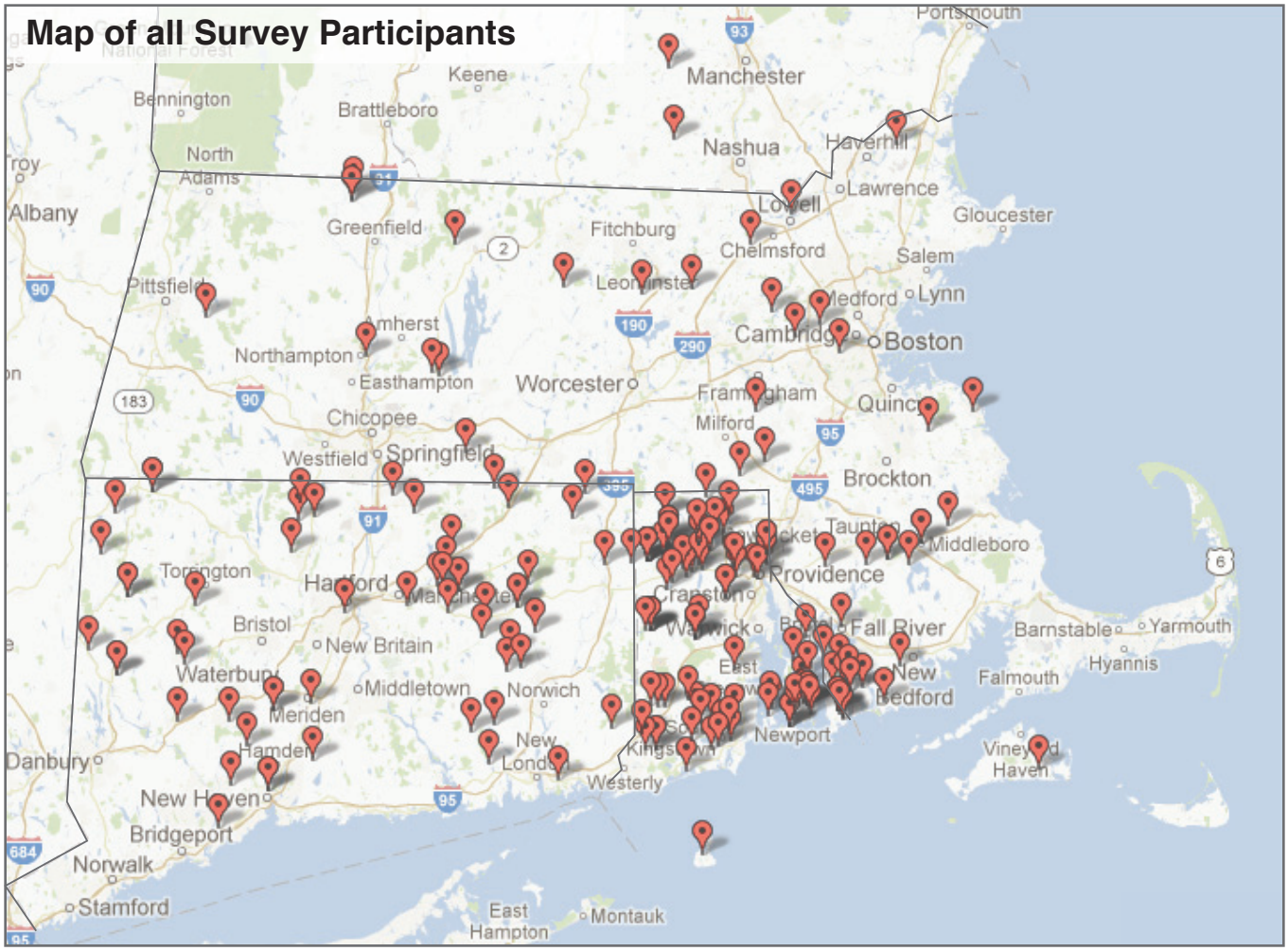
What do farmers need?

Since the study included many types of farms ranging from small start ups to large, established operations, the items requested ranged far and wide. Here are the top 10 requested items, and the percentage of participants who would like to be able to rent them (for a complete list, see Appendix B):

Most Frequently Requested Items



Where is the demand?

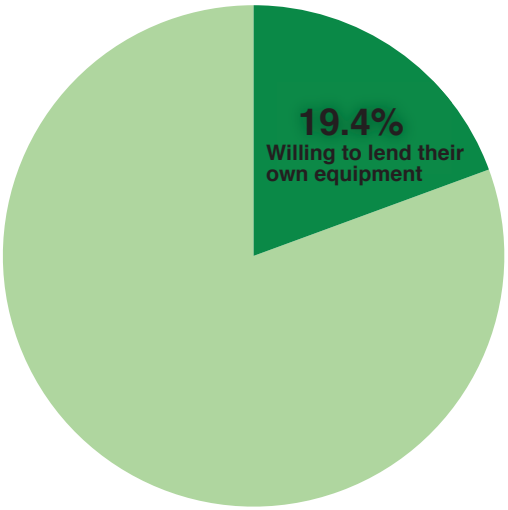


Are farmers willing to rent out their own equipment? With or without operator services?

Forty two of the 216 participants said they would rent their own equipment to others, and listed a total of 70 items available. The most common item listed for rent were plastic mulch layers (8), closely followed by harrows (5), tillers (5) and brush hogs (5).

Most participants raised concerns with renting out their own equipment to others, and some said they would be more likely to offer custom operator services to ensure their equipment would be treated well, though their willingness to provide custom operator services depended on distance, amount of work to be done, time of year and rates. Generally, with the exception of a small number of retired farmers doing the work for their own enjoyment and desire to help others, it would have to be worth someone's while to transport equipment to another farm and operate it, and it would have to not be in conflict with their own operation. Due to these factors, custom operator services become more and more difficult to arrange based on the time-sensitivity of the work to be done (such as haying). Smaller jobs are also less likely to be prioritized unless travel distance is short.

Willingness to Rent or Lend Equipment



Preferences for Renting Equipment With or Without Operator Services

Custom operators were largely underrepresented in this study, with only 26 reported. Most farmers offering custom operator services do not do so on a business-scale, but on a neighborly basis. Very few advertise their services beyond word of mouth, and many do not actively look for more custom operator work. In this respect the current supply of custom operators is very similar to the current state of equipment sharing: it is primarily an informal, neighborly affair, conducted with verbal rather than written agreements. While this system works well for existing farmers in many respects, it leaves behind beginning farmers and farmers whose land is more isolated from other farms (as is often the case in Rhode Island where farms coexist with suburbanization).

On the demand side, when farmers were asked if they would generally prefer to rent equipment with or without operator services, 43% said they would prefer to rent equipment and operate themselves, 30% said they would prefer to hire a custom operator, and 27% said they had no preference as long as it was affordable. Anecdotally, however, this issue is more complex. Answers varied based on the type of equipment – and the type of farmer. Farmers with less equipment operating experience were more likely to be interested in operator services, and farmers of all levels of equipment experience were more likely to be interested in operator services for more complex equipment.

How common is equipment rental?

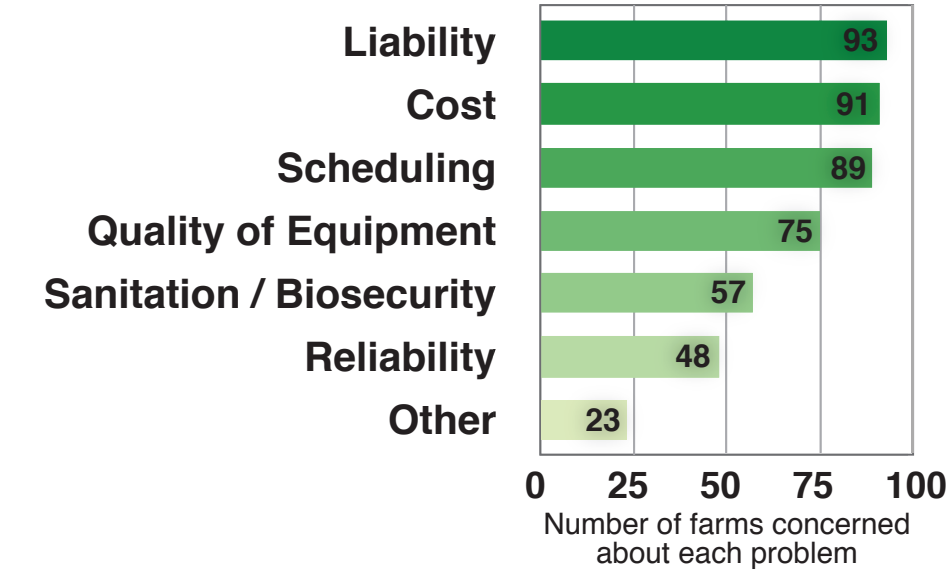
Of the survey respondents, nearly 50% had rented equipment in the past, and most had borrowed equipment of some sort at one time. This represents equipment rented from other farmers, but also from rental agencies, with common non-farm specific rental items strongly represented, such as dump trucks, back hoes, rototillers and wood chippers.

What are the biggest concerns with equipment rental?

Farmers were asked to identify what concerns they would have participating in a shared-use equipment system. The table below shows how many participants identified each of the options as one of their concerns:

"Other" concerns included transporting equipment to and from farms, the types and especially sizes of equipment available, and training to use equipment.

Biggest Concerns About Equipment Rental



"Other concerns" included transporting equipment to and from farms, the types and especially sizes of equipment available, and training to use equipment.

Beyond the Numbers

The survey results show that demand is not focused on a small set of implements unavailable elsewhere, but rather is spread over many types of equipment. Some is farming-specific, like hay balers, while others are also used in construction such as backhoes. Some items are small, relatively inexpensive and durable, like plows and harrows, others are large, heavy, complex, and maintenance-intensive like tractors and mulch layers. Some can be shared easily while some are governed by complex food safety regulations, as in the case of commercial kitchens and Mobile Poultry Processing Units. When determining what equipment to include in a shared-use system and how to structure the system from the bottom up, there are several additional, external factors that must be taken into consideration, beyond the internal sharing concerns listed in the survey (maintenance, scheduling, liability, etc).

Transplanting at Rhode Island Nurseries, Middletown, RI

The Human Element

One farmer summed up his concerns with sharing equipment quite candidly from his own experience: he borrowed a chainsaw from a neighbor, and when the chain broke he had too many other pressing concerns to take the time to replace it, and returned it unfixed. In order for equipment sharing to be successful, users must treat the equipment as though it was their own. This can be achieved in a few ways: 1) through shared ownership or a membership-type buy in to participate in equipment sharing, or 2) a system of damage deposits and fees for improper care. Even then, however, the human element can still be a challenge for equipment sharing.

Beyond maintenance and care of equipment, partners in shared-equipment systems need to be able to work together and have mutual respect for each others' farming practices – whether they be cooperatives with shared ownership or follow a rental agency model. Coordination is needed for scheduling equipment use and transportation, and ensuring proper cleaning and sanitation between farms. Iowa State University has put together a manual with guidance on this, including advice on the importance of matching personalities in equipment sharing, as well as worksheets for creating shared ownership and use agreements[3].

Competition with Existing Rental Agencies

In some places, equipment that farmers need is available at rental companies and equipment dealerships. In Southern New England, most of these businesses cater to construction and landscaping sectors, but they often do have tractors, skid steers, excavators, and other items that were commonly requested by farmers in the survey. This type of equipment, however, does have a great deal of variation, and there is often a mismatch between the specifications of equipment available on the rental market and the specifications needed by farmers. Most tractors currently available for rent, for example, are bucket tractors unsuitable for cultivation. Study participants did not always identify what type of tractor they would like to see available, but out of thirty seven, five indicated they were specifically interested in cultivating tractors, and five indicated they were specifically interested in bucket tractors. In the case of posthole augers, some attach to skid steers and others to tractors

Equipment at Freedom Food Farm, Johnston, RI

with three point hitches. One of the participants in this study attempted to rent a posthole auger to use with his tractor, and ended up renting a skid steer as well at an additional cost because augers compatible with three point hitches are more of a farm specific item and were not available. Some of the items requested, such as walk behind rototillers, are available at national chain home improvement stores and fit the specifications needed by small scale, beginning farmers.

Equipment dealers are well poised to offer rental services because they can easily add new items to their lines according to demand, can perform maintenance in house, and can easily sell used items to defray the cost of keeping up a rental fleet. They also have an added advantage of making it appealing to renters to buy equipment from them in the future. Most of the equipment dealers interviewed, however, do not have a dedicated staff member to oversee rental operations, do not advertise rentals, or selectively rent only to trusted customers. Some of the equipment dealers interviewed do not have the desire to go into the rental business because: 1) they do not perceive a demand for such a service, and 2) they believe that its profitability is questionable.

However, one equipment dealer with locations in MA and RI started renting construction, landscaping and farming equipment five years ago as a small subset of their business, and has seen it grow 25-30% a year, to a point where they will now add implements to the rental fleet if enough customers request it. The owner of this business recognizes the changing landscape of equipment ownership, and is changing his business model to keep up with it. This has the potential to become a more frequent occurrence if more farmers express demand for equipment rentals.

Renting equipment from agencies that cater to construction and landscaping is often unaffordable to farmers even when the equipment itself is compatible. In the case of backhoes, for instance (the 6th most commonly requested item), many are available for rent from national rental chains, but not at a rate that is affordable for farmers. In some cases this is due to the length of rentals – counted in hours rather than days. This is an important factor in the consideration of an equipment bank. In order to offer the same equipment at lower usage rates than the competition, an equipment bank must have lower overhead costs.

Transporting Rental Equipment

For larger equipment, transportation is an important factor that may make or break the feasibility of an equipment bank. A small

Potato Wagon at Maplewood Farm, Portsmouth, RI

number of survey participants indicated that they had trucks and trailers available to transport rented equipment back to their farm, and many indicated that they had a truck but no trailer. A large number, however, would not be able to participate in an equipment bank without a transportation service provided for larger implements.

Grading Potatoes at Maplewood Farm, Portsmouth, RI

Equipment dealers and rental agencies are again well poised to offer farm equipment rental since they already have the capacity to include equipment delivery and pick up at an additional cost to the renter. A third party equipment bank would need to take this into account and provide an optional equipment delivery service, or the additional rental of a truck and trailer. This could increase the expense of renting certain implements beyond financial reason. The added cost of transportation is more likely to be absorbed in cases of extended rental periods (i.e. weeks instead of days), and make more financial sense for more expensive equipment.

Another option for equipment transportation is hiring a custom operator. Several of the survey respondents have equipment transportation capabilities, and would be interested in offering their services for a fee, but with various stipulations: One farmer interviewed owns a landscaping business as well as a farming operation, and would be willing to use the truck and trailer he owns for transporting landscaping equipment to job sites for farm equipment deliveries. The landscaping business, however, would necessarily take precedence when scheduling equipment deliveries. Another recently bought a dump truck and flat bed trailer and would be willing to use it for farm equipment delivery at around $3/loaded mile (depending on gas prices at the time), not including the time to load/unload. This farm hays many acres, however, and would have trouble sparing the personnel to drive the truck once haying starts. A third has a 12 ton truck and trailer, and would be interested in offering delivery services but notes that his truck only gets around 5 miles to the gallon, so the cost of fuel would greatly influence the price of delivery. For a delivery of 30 miles he would expect to have to charge $100 each way. Among all the farmers who had an interest in offering delivery services, the main limiting factors are competing uses of the farmer's time and the price of fuel. Most expressed willingness to deliver equipment up to an hour's drive, and further for an extra fee.

The Landscape of Demand

Another major factor to be considered when designing an equipment bank is the nature of equipment demand. Maps and percentages alone do not paint a full picture, and many factors must be considered. A single, centrally located equipment bank is unlikely to find success without a consistent customer base within a reasonable distance who are interested in a similar set of equipment. This study found that instead of an even distribution, there are clusters of high demand and areas of very little, with no clear patterns of variation.

Demand is spread out over many implements, and even where there is high demand for the same type of implement, actual usage is limited by compatibility between farms. In one case, two farmers expressed interest in sharing the use of a rock picker. One has an 80 horsepower tractor, the other a 30 horsepower tractor, and so it does not make sense for them to share. Beyond horsepower, there are compatibility issues even sharing appropriately sized implements from tractor to tractor – Farmall Cub tractors, for example, usually cannot pull the same implement as a Kubota or a John Deere of similar horsepower due to differences in hitch design. Even items with low horsepower requirements and standard hitches can run into issues of compatibility with particular fields and soil types. Several decades ago, for example, a no-till seeder was purchased by URI and the Rhode Island Conservation Districts with the intent of sharing it between farms. The seeder turned out to be too large to be practical for use on many of the fields in the area.

Round Bale Grabber at Windmist Farm, Jamestown, RI

Several farmers who requested a particular item during the beginning stages of this study had purchased it or arranged other solutions by the time of the writing of this report. For example, the smaller of the two farmers requesting rock pickers has, since the time of the survey, acquired a potato digger which she now uses as a rock picker. Education is also needed after farmers decide to adopt a new method like no-till seeding, as was the case of the failed Rhode Island no-till seeder. According to the farmer who was in charge of transporting and operating it at the time, many of the farms who used it did not adequately kill off cover crops before their scheduled seeding, and so found no success with the method or were unable to use it at all.

Plastic Mulch Layer at Rhode Island Nurseries, Middletown, RI

SPECIAL CASES:

Processing Regulations

Two of the top ten requested items – Mobile Poultry Processing Units (MPPUs) (#3) and Commercial Kitchens (#10) – fall outside the scope of general shared-use equipment and require special considerations. While both have great potential to be successfully shared between farms, both are extensively regulated by State and Federal agencies and both have very high start up costs for equipment and staff training/licensing.

Commercial Kitchens are already available to some extent, but in order to meet the needs of farmers they must be affordable, properly equipped, and optionally include the rental of storage space. Temperature controlled storage, flash freezing, cryovacing and canning equipment, for example, was of particular importance to many of the farmers interviewed. Many of these farmers also indicated that technical support would be desirable along with

kitchen space, including assistance with food safety licenses and food labeling requirements.

In the case of shared-use MPPUs, the first document to be consulted is the USDA Food Safety and Inspection Service (FSIS) "Guidance for determining whether a poultry slaughter or processing operation is exempt from the inspection requirements of the Poultry Products Inspection Act"[4]. If producers are willing to limit their market for poultry processed in an MPPU to within state boundaries, they may be exempt from the more stringent requirements of USDA inspection, in which case certification falls to the state governing authority. In Rhode Island, this is jointly the Department of Health and the DEM Division of Agriculture. This is an important distinction that must be made before an MPPU is constructed or purchased as it impacts the design of the unit. If an MPPU were to seek only state certification, the next step would be to determine how "mobile" it would be. The site on which the MPPU parks must be certified along with the MPPU itself, and concerns such as access to water – and testing well water, in the absence of access to a public water supply, waste water disposal, offal disposal and proximity to temperature controlled storage must be considered. (Note: See Appendix D for additional MPPU resources.)

Enclosed MPPU, courtesy of NESFI and the New Entry Sustainable Farming Project, Lowell, MA

The New England Small Farm Institute (NESFI), based in Belchertown, Massachusetts owns two MPPUs which are currently available for use by farmers within MA, though their systems for training, operating and sharing the units are still evolving[5]. NESFI has worked with Tufts University's New Entry Sustainable Farming Project in Lowell, MA on the project, and both organizations are excellent resources, having already dealt with many of the regulatory stumbling blocks[6].

Tractors and Haying Equipment

The top two requested items in the survey were tractors (requested by 17.1% of respondents), and hay equipment (16.2%). Unfortunately, relatively high demand is not enough to make these items easy to include in a shared-use system. The variability between different types and sizes of tractors and hay equipment must be taken into account, as well as the high cost and additional equipment needed to transport larger items. Additionally, tractors and hay balers require consistent maintenance and can be prone to breakdowns – as one farmer put it, the more moving parts means more trouble: more trouble keeping equipment in good working order, more trouble switching between multiple operators, and more risk of personal injury and liability.

Sharing hay equipment faces the additional challenge of time and weather sensitivity, which make it difficult to schedule effectively and difficult for multiple farms to use in the same season unless they are in close proximity. Many farmers interviewed for this study indicated

Hoop Bender at Roots Farm, Tiverton, RI

that they were interested in renting hay equipment because they had already tried to hire other farmers to hay their fields but had limited success securing commitments. Still more non-farming landowners over the course of the study indicated that they would like to learn how to hay their own fields to break their dependence on unreliable custom operators. One solution to the time-sensitivity of haying could be to arrange sharing of equipment across a North/South axis large enough to have significant differences in timing. In the Midwest, the seasonally dependent need for very expensive grain harvesting equipment has been tackled by large scale contract harvest companies who travel from Canada to Texas with equipment and operators harvesting in different areas when the time is right. This arrangement is made possible due to the enormous scale of the harvesting to be done, so it is not analogous to the need for affordable hay making in Southern New England, but it could be a useful model for a much smaller scale endeavor.

Arcadian Fields, Richmond, RI

Models for Equipment Sharing

The basic finding of this study is that there is more demand for equipment than there is supply. In order to create a successful Farm equipment bank, it is necessary to carefully review the equipment needs and special considerations of farmers at the local level, rather than the multi-state focus of this study, and review examples of successful equipment rental and sharing arrangements already in use around the country and beyond. There is no single formula for success; instead, there are many variables to take into account. Each subset of farms will require a unique system of sharing or rental to best serve them.

Here are some examples of successful equipment sharing systems. Each reflects local needs and thus takes a unique approach:

Southern Maryland Agricultural Development Commission

The Southern Maryland Agricultural Development Commission (SMADC)[7] is a good example of a successful decentralized third party rental. SMADC subsidizes equipment rental systems in each of the five counties in its jurisdiction through their Soil Conservation Districts (and in one County, the local Farm Bureau). In this system, transportation distances are kept to a minimum (within a 45 minute drive for most renters) and each county's local Conservation District has the freedom to organize its rental system in the most effective way for their constituents. The equipment sharing systems used vary from basic subsidies to more complex rental agencies. The Charles Soil Conservation District, for example, uses its funding to directly subsidize the rental of farm equipment at a local equipment dealership which did not previously offer rentals, while the St. Mary's County Soil Conservation District operates their own full service rental system, including a full time employee responsible for inspecting and maintaining equipment as well as offering training when necessary. The Prince George's Soil Conservation District goes a step further and offers operator services and rentals of construction equipment as well as farm equipment.

This system is made possible through funding

from Maryland's Tobacco Transition Program. Its success is also linked with the high density of large tracts of agricultural land in the area providing consistent demand for equipment. It is important to note that this system is not fully self sustaining. The subsidy system used in Charles County is the least sustainable, though the simplest to operate. St. Mary's and Prince George's Counties may approach financial solvency, though a large initial investment was needed to purchase equipment and establish the system. The examples in these two counties are the closest to the initial vision for Rhode Island which precipitated this report, but important differences in the agricultural landscape, and the continuing financial support of the Tobacco Transition Funding beyond just start up costs provide the ingredients for success in Southern Maryland that are absent in Rhode Island.

The Sustainable Agriculture Tool Lending Library

This equipment bank model was started by George O'Neal at Lil' Farm in Hillsborough, North Carolina[8]. Funded by the Rural Advancement Foundation International (RAFI)'s Tobacco Community Reinvestment Fund, this is a simple yet effective tool sharing cooperative between 10 farms. Each farm pays membership dues of $200/year and participates in an annual work day to review coop operations and maintain equipment. In exchange, each farm has "first-come first-served" access to about 14 pieces of equipment, scheduled through a Google calendar. The initial equipment was purchased with grant funding, and membership dues are intended to cover maintenance and insurance costs as well as the purchase of one new implement each year. All of the farms in the cooperative are within an hour's drive, and the only requirements to participate are a truck to move equipment (the coop owns a trailer) and a tractor with at least 30 horsepower to pull implements.

This cooperative model deals very effectively with most of the major concerns of equipment sharing. Scheduling is equitable and simple since it takes place on an online calendar that all of the members can view. Transportation of equipment is taken care of with the trailer owned by the coop, and farmers are only responsible for transportation in one direction since there is no centralized equipment storage facility. Equipment is stored on the farm that used it last until it is needed by someone else. The coop also purchased a power washer, which goes with the trailer and must be used to wash equipment before it leaves the farm and again when it reaches the next farm. This double-washing system is intended to limit the transmission of pests and disease, and is effective as long as the protocol is followed. The coop is not seeking any more members. Instead, they would like to assist other farmers in starting sister organizations, recognizing that much of their success is due to the fact that they are a small, friendly organization in which all members know each other personally and have a shared sense of ownership.

This would likely be a highly successful model for farmers in Rhode Island, Connecticut and Massachusetts, but cannot be created from the top down by a third party. Instead it must be a user-initiated cooperative from the outset to ensure that farmers involved have ownership over the project through the whole process. It is also essential that farmers involved take leadership roles within the organization to sustain it. It is important to note that startup capital is a key to the success of this sort of equipment bank. Funders interested in supporting small and beginning farmers in South Eastern New England should consider funding projects such as this to maximize the efficacy of their funds among several farms at once.

Using a Glaser Wheel Hoe at Arcadian Fields, Richmond, RI

Flame Weeder at Arcadian Fields, Richmond, RI

New England Small Farm Institute

NESFI, mentioned earlier for its MPPU, is also home to the Pioneer Valley Community Granary . The Granary is a tool and experience sharing project funded by the MA Department of Agricultural Resources. It offers new grain producers very affordable access to grain processing equipment such as a seed cleaner, corn sheller and grain dryer, with an annual membership fee and a $2/hour charge for the use of equipment, including any necessary training. This low rate has posed problems for the system since it does not allow any funding for overhead or personnel. All of the organization, training, and maintenance currently fall to one person who is also a full time farmer. With increased staffing it could be more successful, and possibly move beyond a passive recruitment system to include outreach and workshops for prospective participants. This is a key element for the purpose of encouraging more farmers to experiment with grain cultivation in an area where grain has not been grown on a commercial scale in decades.

It is worth noting that the market for local, sustainably grown grain in New England is growing to the point where crops that have been almost completely outsourced to the Midwest might be financially viable here again on a smaller scale. Fledgling grain equipment sharing coops are cropping up in several New England States, and in Rhode Island, one farm recently began harvesting portions of its rye cover crop with equipment borrowed from a sod farm for use in bread by a local bakery . The issue of scale, however, presents a problem: modern grain equipment has become scaled up to sizes that are simply too large and too expensive for farms in New England – especially Rhode Island. Small scale combines are either refurbished antiques (as in the case of much of the Pioneer Valley Community Granary's equipment) or imported from other parts of the world at great cost. Six of the participants in this survey indicated that they would be interested in growing grains if a combine were available for hire, but otherwise would not attempt it and would not likely purchase the equipment themselves. In this case equipment sharing could be the impetus for a resurgence in local grain production.

Urban Edge

Urban Edge Farm is a 50 acre property owned by the Rhode Island Department of Environmental Management's Division of Agriculture and operated by the South Side Community Land Trust (SSCLT) as an incubator for seven farm businesses. Farmers at SSCLT

Harvesting Grain at White Oak Farm, host of the Pioneer Valley Community Granary at NESFI's Lampson Brook Farms, Belchertown, MA

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share resources such as storage space, as well as two tractors and several implements owned by SSCLT. This sharing model is successful because the farms are all on the same property, which overcomes the challenges of transportation and scheduling. Training on how to use the equipment was the biggest gap in this program, and some training has since been provided through grant funding, but this highlights an important piece of any equipment bank system. To be truly effective for supporting beginning farmers, an equipment bank must offer some training, education and outreach.

Keys to success

Cooperation between farms to share usage and/or ownership of equipment is highly complex and faces multiple types of challenges which a single, centralized equipment bank would not necessarily be the best equipped to overcome. Careful planning, organization and coordination between farmers, however, have the potential to greatly improve the success of equipment sharing. In order to be successful, farmers considering participation must be a part of the process from the beginning. Farmers' needs are too specific and too prone to change for a third party to organize independently. The following is an outline of the process to develop successful equipment sharing systems based on lessons learned from existing systems and the concerns raised by farmers in this study.

- What type of equipment do participating farmers need? Is any of it already available at local rental agencies?
  - Out of this list, which items are most likely to be successfully shared? (Consider time and weather sensitivity, ease of transportation, ease of use by multiple operators, potential for breakdowns.)
- Once specific equipment has been identified, how much would it get used in one season?
  - How many farmers would use it?
    How many days/hours/acres would each participant use it for?
- Should training and/or operator services be offered?
- What is the geographic distribution of potential users?
  - Is additional equipment needed for transportation?
  - How much will it cost to transport?
- If the above questions are answered, and pieces of equipment are identified that are not already available on the rental market, and that enough farmers within a reasonable sharing distance would be able to use in one season to make it financially viable, the following questions must be considered next:

- Who will repair and maintain equipment?
- How will the owners recoup depreciation costs and eventually afford to replace equipment?
- How much liability insurance will the users and owners of the equipment be required to have?
- Once these questions are answered usage fees for equipment or membership dues in the case of a cooperative can be developed, and finer organizational points can be considered:
- Where will equipment be stored?
- How will an equitable scheduling system be developed? Is there potential to coordinate geographically?
- What record keeping will be required? (i.e. checklists and logbooks for recording use, maintenance and incidents)
- What sanitation protocol will be established to ensure no transfer of pests, weeds or disease from farm to farm?
- How will open lines of communication and the spirit of cooperation rather than competition between users be established and maintained?

Finally, carefully written agreements – even for small scale equipment sharing – can be very helpful to ensure partners and equipment are treated fairly, and to provide recourse in the event of an abuse.

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Appendix A: The Survey

THE UNIVERSITY OF RHODE ISLAND

University of Connecticut

USDA NIFA United States Department of Agriculture National Institute of Food and Agriculture

Farm Equipment Rental Exit this survey

Agricultural Equipment Rental for Southern New England: Feasibility Survey

Farm equipment is expensive to buy and costly to maintain. New technology can be difficult to keep up with, but can make all the difference in labor and production efficiency...

The RI Association of Conservation Districts is beginning a study on the feasibility of an equipment rental system for Southern New England.

If you make or influence decisions about agricultural equipment purchases, WE WANT YOUR INPUT!

Please contact Becca Buckler at (401)934-0842 or by email at Becca.RIACD@gmail.com if you have any questions.

1. Farm/Business Name

*** 2. Zip Code:**

*** 3. How long have you been farming?**

- ○ More than 10 years
- ○ Less than 10 years

4. Please mark the number of crop production acres for the following:

Hay	
Grains	
Mixed Vegetables	
Small Fruit	
Tree Fruit	
Ornamental Plants	
Other (please specify):	

5. If you have livestock, please mark the numbers of each animal below.

Beef	
Dairy	
Poultry for meat	
Layers	
Turkeys	
Rabbits	
Goats	
Pigs	
Game	
Lambs for meat	
Sheep	
Other (please specify):	

6. Please list any value added products you produce (i.e. cheese, preserves, pies, etc.):

7. What kinds of equipment or facilities have you rented, or attempted to rent, in the past (if any)?

*** 8. What are your biggest concerns with rented farm equipment? (Check all that apply)**

- [ ] Equipment will be difficult or impossible to schedule when I need it.
- [ ] Equipment won't arrive at the time I schedule it for.
- [ ] Equipment will be poorly maintained
- [ ] Something will break and I will be held liable.
- [ ] Equipment will be too expensive to rent.
- [ ] Equipment will not be sanitary - weeds, pests or other contaminants will be brought on to my land from someone else's.
- [ ] Other (please specify)

*** 9. What equipment or facility would you most like to see available to rent?**

1.
2.
3.
4.
5.

10. Do you have any equipment you would be interested in renting to others?

1.
2.
3.

11. Do you have any other thoughts or ideas about sharing or renting farm equipment?

12. As a part of this project we are compiling a database of custom operators.

If you currently offer, or know anyone who offers custom operator services, please provide as much of the following information as possible:

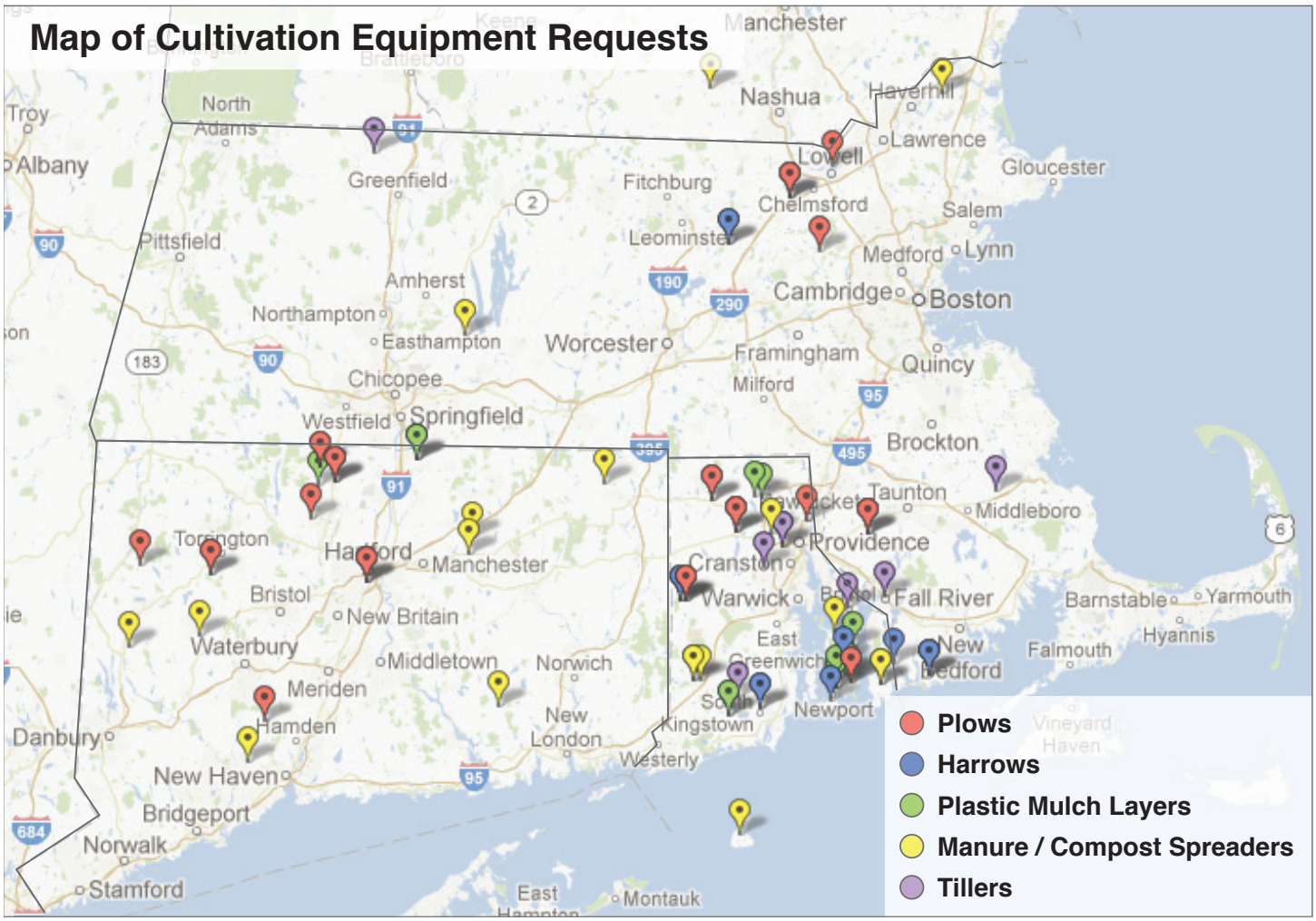
Name:
Services Offered:
Phone Number:
Email Address:

13. Thank you for taking the time to complete this survey – your answers will help us better serve local farmers!

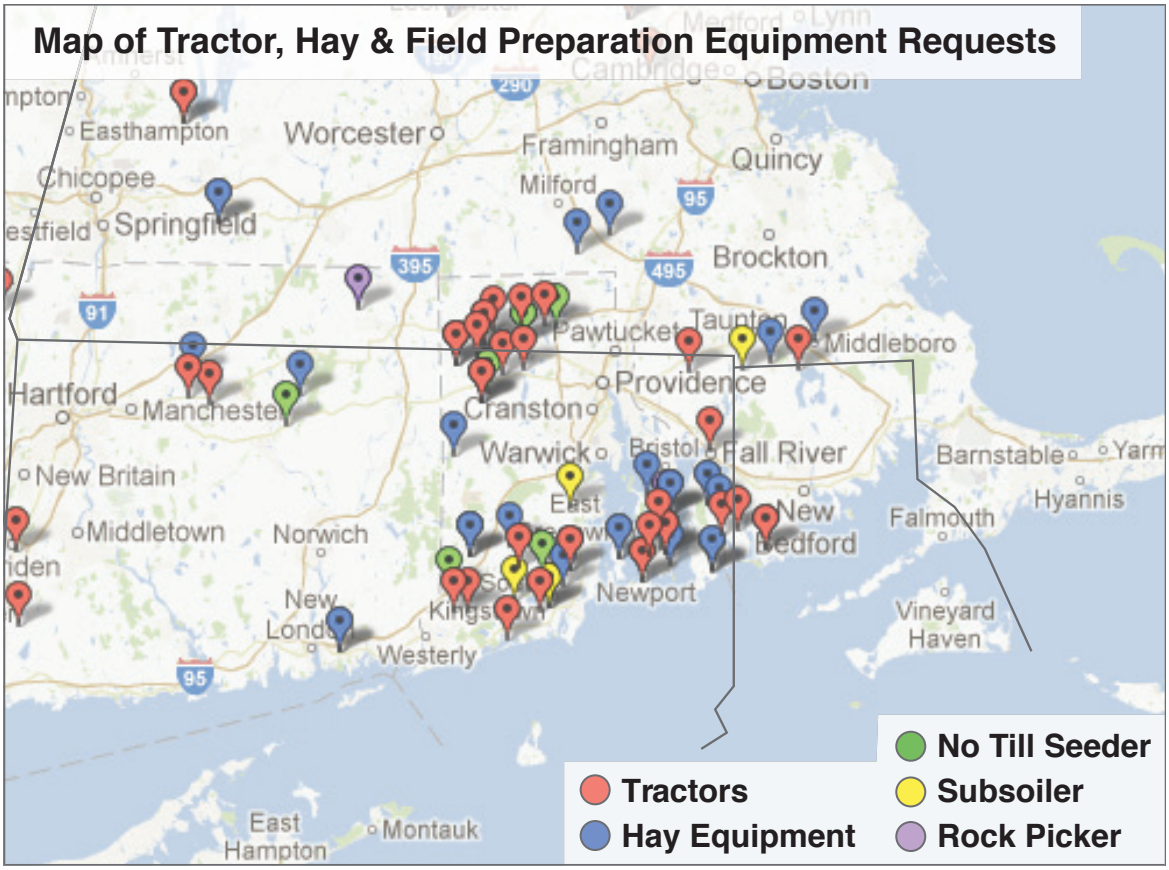
If you would like to give more input as the study progresses please provide your contact information.

Name:	
Company:	
Address:	
Address 2:	
City/Town:	
State:	-- select state --
ZIP:	
Email Address:	

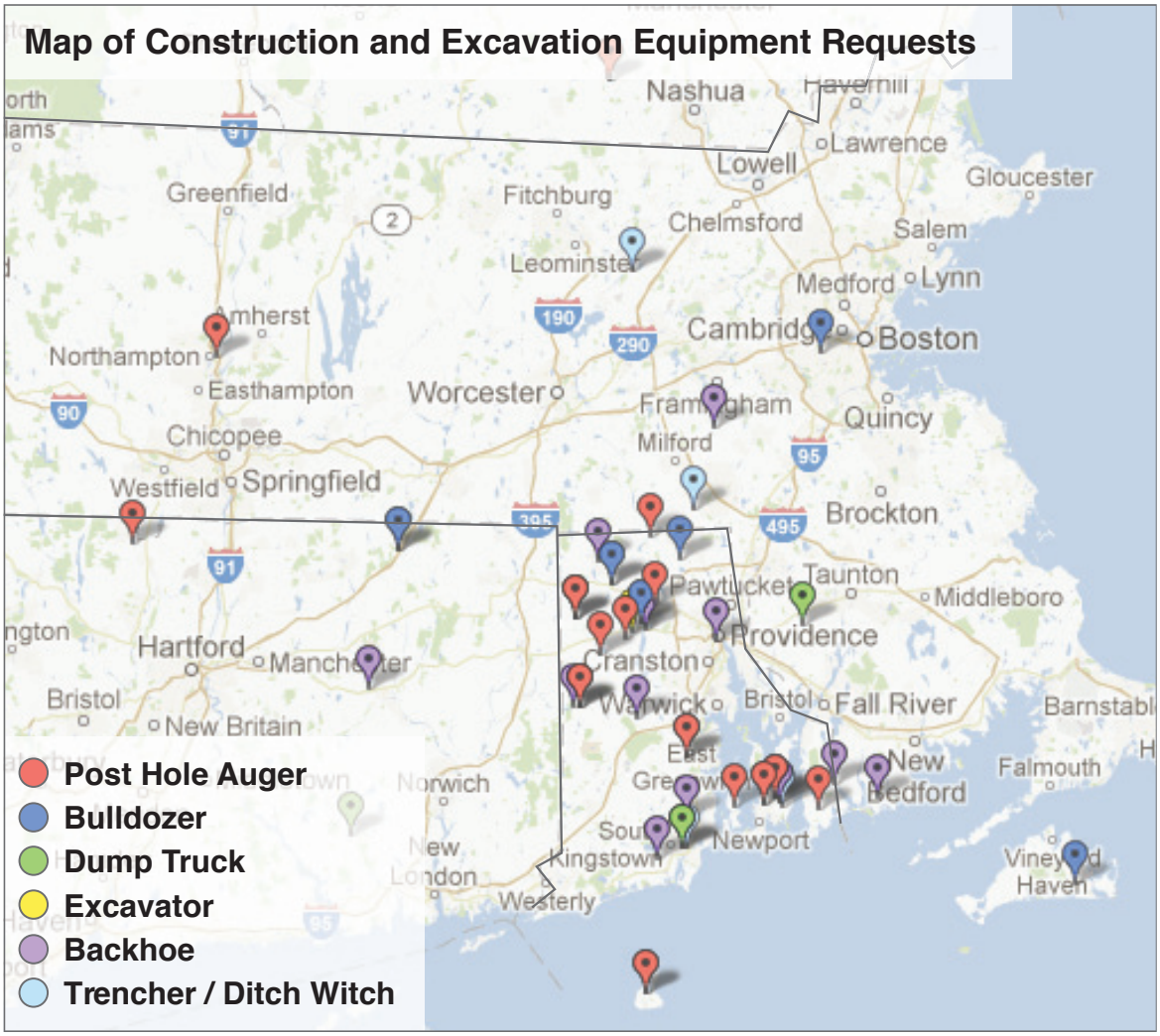
Appendix B: Demand Maps



Map of Tractor, Hay & Field Preparation Equipment Requests



Map of Construction and Excavation Equipment Requests



Appendix C: Complete List of Requested Equipment

#	Equipment	Total	% Participants
1	Tractors	37	17.1%
2	Hay Equipment	35	16.2%
3	MPPU	24	11.1%
4	Manure Spreader	23	10.6%
5	Plows	20	9.3%
6	Backhoe	19	8.8%
7	Harrows	18	8.3%
8	Tillers	18	8.3%
9	Commercial Kitchens	17	7.9%
10	Plastic mulch Layers	17	7.9%
11	Post Hole Auger	15	6.9%
12	Sub Soiler	14	6.5%
13	Freezers	11	5.1%
14	No-till Seeders	11	5.1%
15	Poultry Processing - Home	10	4.6%
16	Seeders	9	4.2%
17	Cryovacing	8	3.7%
18	Grain Equipment	8	3.7%
19	Irrigation Equipment	8	3.7%
20	Lime Spreader	7	3.2%
21	Planters/transplanters	7	3.2%
22	Sprayers	7	3.2%
23	Wood Chipper	7	3.2%
24	Brush Hog	6	2.8%
25	Bulldozer	6	2.8%
26	Cheese-Making Equipment	6	2.8%
27	Compost Turner	5	2.3%
28	Cultivator	5	2.3%
29	Excavator	5	2.3%
30	Keyline Plow	5	2.3%
31	Potato Digger	5	2.3%
32	Rock Picker	5	2.3%
33	Spaders	5	2.3%
34	Dump Truck	4	1.9%
35	Hay Bale Chopper	4	1.9%
36	Livestock Trailer	4	1.9%
37	Deep Zone Tiller	3	1.4%
38	Egg Washer	3	1.4%
39	Greens Harvester	3	1.4%
40	Information Sharing	3	1.4%
41	Pick-up Truck	3	1.4%
42	Roller-Crimper	3	1.4%
43	Saw Mill	3	1.4%
44	Wood Splitter	3	1.4%
45	BCS Tractor Implements	2	0.9%

#	Equipment	Total	% Participants
46	Bobcat	2	0.9%
47	Box Grader	2	0.9%
48	Carrot Harvester	2	0.9%
49	Compost Screener	2	0.9%
50	Compost Windrower	2	0.9%
51	Firewood Processing Equipment	2	0.9%
52	Flail Mower	2	0.9%
53	Fork Lift	2	0.9%
54	General Field Prep	2	0.9%
55	Generator	2	0.9%
56	Other Mowers	2	0.9%
57	Over Seeder / Drill	2	0.9%
58	Root Washer	2	0.9%
59	Rotary Mower	2	0.9%
60	Sickle Bar Mower	2	0.9%
61	40lb Bagging Equipment	1	0.5%
62	Broadforks	1	0.5%
63	Chain Pole Saw	1	0.5%
64	Chicken Crates	1	0.5%
65	Cider Processing Equipment	1	0.5%
66	Community Canning Facility	1	0.5%
67	Corn Sheller	1	0.5%
68	Crane	1	0.5%
69	Event Tents	1	0.5%
70	Food Storage	1	0.5%
71	Forestry Mower	1	0.5%
72	Forestry Mulcher	1	0.5%
73	Front End Loader	1	0.5%
74	Handling Pens/Head Gates	1	0.5%
75	Hop Harvester	1	0.5%
76	Livestock Scale	1	0.5%
77	Mobile Slaughter for Sheep/Goats	1	0.5%
78	Nut Huller	1	0.5%
79	Potato Cutter	1	0.5%
80	Potting Soil Sterilizer	1	0.5%
81	Power Washer	1	0.5%
82	Pullet/Layer Housing	1	0.5%
83	Skid Steer	1	0.5%
84	Slaughter House	1	0.5%
85	Surveying Equipment	1	0.5%
86	Tanker Truck	1	0.5%
87	Temporary Storage Units	1	0.5%
88	Trailer	1	0.5%
89	Wagons for Hayrides	1	0.5%
90	Wood Boring Machine	1	0.5%

Appendix D: Resources

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Badger's Millside Farm: **http://millsidefarm.com/poultry-man-equipment-2/poultry-processing-equipment-parts-for-sale**

Cornerstone Farm Ventures: **http://www.cornerstone-farm.com/equipment/mobile-processing-poultry-mpu-mppu**

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USDA Rural Development: Business and Cooperative Assistance Rural Business Enterprise Grant Program: **http://www.rurdev.usda.gov/BCP_rbeg.html**

Rhode Island Association of Conservation Districts

Helping Rhode Island Conservation Districts Help Rhode Island

conserving natural resources
for our future

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