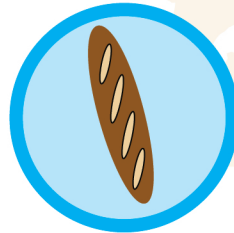




From Farm to Bakery



Final Report

From Farm to Bakery: Building Value Chains for Regionally-Grown and Milled Grains

Project Contact:

Sarah Johnston

New York State Department of Agriculture and Markets

10B Airline Drive

Albany, NY 12235

Sarah.Johnston@agriculture.ny.gov

518-457-4531

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Project Partners:

New York Industrial Retention Network

Greenmarket

Northeast Organic Farming Association of New York

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Statement of the Issue – Why Farm to Bakery?

In recent years there has been resurgence of interest amongst state farmers to produce small grains (with an emphasis on wheat) for local and regional mills. Producer motivation is in part based on increasing grain prices and the need to incorporate small grains into organic rotations and produce a high-value crop. Simultaneously, there has also been a demonstrated interest amongst bakeries seeking high quality, locally-milled flour, driven both by consumer interest in locally grown farm products and by Greenmarket's requirement that baked goods sold in New York City farmers' markets include locally produced and/or milled flours. These activities are entwined with the growing interest in local food systems by policy advocates and consumers alike, which has highlighted the need for a greater connection between the origin of where food is grown, processed and ultimately consumed. The prospect of re-establishing localized grain production as a component of local food systems has positive environmental and economic implications for the State.

However, there are several missing links in supply chains for grains between the growers and consumers of baked goods. It begins with what is grown in New York State. Most small grain production in New York State farmers has been for animal consumption or green manures. The investment required by an individual farmer to grow grains for human consumption is both that of learning how to produce food-grade grains and accessing or purchasing the equipment and facilities to clean, dry and store them. All varieties of wheat, barley and rye are not created equal. Varieties vary in protein content, flavor, and a range of other factors that make them more or less desirable for specific uses. Trialing of heritage wheat varieties, as well as breeding disease resistance and climate adaptability into grains is underway, but far from finished. Farmers need to market their grains for a price that covers their investment in education and capital investment. Millers need customers who are willing to deal with the potential inconsistencies of flours milled from locally grown grains. In order for bakers to support the agricultural endeavor, they need to understand the unique characteristics of local flour and how to work with it. They also need to be comfortable with the inevitable growing pains associated with an expanding market. Finally, consumers need ways to support bakers when they have locally-grown baked goods for sale and when they don't, due to product availability.

The "Farm to Bakery" project chose to work with existing organizations, researchers, farmers, farmer educators, millers and bakers in New York State to overcome several hurdles to market expansion. In so doing, project participants became much more conversant with the challenges and constraints for each of the players in the value chain and how each sector might work together with others to further the mutual goal of expanding production and consumption of New York grown grains.

The Approach: Farm to Bakery Project Summary Description

The New York State Department of Agriculture and Markets (NYSDAM) and the New York Industrial Retention Network (NYIRN) collaborated on the *Farm to Bakery* pilot project which sought to capitalize upon the demonstrated demand for quality locally-grown grains and flour by both New York City wholesale bakers and upstate New York bakers while simultaneously increasing New York growers' and millers' capacity to meet this demand. The core of the project was to develop a collaborative cluster of New York City baker customers to assist growers and millers in product development that would lead to long term business relationships. The project's assumptions were that communication and trials would lead to market development. The specific goals listed below were undertaken to establish these initial relationships:

- Goal 1:** Foster collaborative business relationships between producers and prospective baker customers through matchmaking.
- Goal 2:** Provide detailed usability feedback on hard and soft wheat products from bread bakers to determine which varieties, milling properties and packaging best meet market needs.
- Goal 3:** Strengthen supply chains between growers, millers and bakers.
- Goal 4:** Increase miller and grower capacity to deliver quality flours consistently.
- Goal 5:** Increase public awareness of locally-branded grains and breads.

Summary Results

Project partners successfully completed pilot project goals, but not without surprises, changes to our assumptions, and the need to add specific tasks to those already identified as part of the project in order to do so. The pilot aimed to demonstrate the potential to meet New York City's baker's demand for New York State-grown grains. It did so by fostering collaborative business relationships between producers and prospective baker customers, providing detailed usability feedback on hard and soft wheat from bakers and identifying distribution gaps and opportunities.

In order to achieve the first and overarching goal of this pilot program – to foster collaborative business relationships between producers and prospective baker customers through match-making – project partners identified a number of sub-tasks. These included identifying growers, millers and bakers willing to participate in the pilot, compiling supply and demand information for the participants, and formalizing the matchmaking process. By doing this, partners could effectively coordinate activities, formalize roles and begin data collection.

Our second goal of conducting baking trials with New York State flours resulted in information that was very useful to those on the outside of this supply chain of grain to flour to bread. We learned from this lengthy process that testing performed by bakers provided a wealth of critical information including:

- Flour quality varied by batch, variety, year (growing season/conditions).
 - Interested bakers could adjust their recipe to make bread they were satisfied with.
 - Heirloom wheat varieties that do well in New York State growing conditions can produce desirable baked goods.
 - Some larger operations were dissatisfied with the variability of flour characteristics. We believe this is due to process constraints (they do not have the time to adjust their production every time there is a flour variation).
- Bakers were very busy and found it hard, despite their agreement to participate, to do so in the “heat” of production schedules. Some didn't provide feedback.
 - Some bakers's requests for flour were too large for the pilot to accommodate.
 - Current supplies of New York State-grown grains are limited.

Strengthening supply and distribution chains was a goal based on the assumption that distribution options for millers were limited. In fact, we learned that mills had their own distribution options into New York City. While Greenmarket intended its Wholesale Greenmarket to include flours, this component at Greenmarket has been delayed. Instead, Greenmarket has created a fantastic webpage, linking growers, millers and bakers. While this is an information tool rather than an actual physical distribution location, we have found that it allows all parties to expand their marketing as needed.

The goal of increasing grower and miller capacity to meet demand is a complicated one, since these are self-directed businesses. Greenmarket set a policy several years ago that bread sold at its markets include locally grown grains when available. As described in the detailed report on

Goal No. 2 in the Appendices, millers all reported positive increases in sales volumes or an increase in the ease of convincing new bakers to try their New York State-grown flours.

An unanticipated challenge to grower expansion was learning that farmers who grow feed grains do not necessarily have the management and technical knowledge to grow food-grade grains. We learned from producers that on-farm equipment for cleaning and for on-farm storage are required and that prices for feed grains are so high, that making the switch to food-grade grains is not exactly enticing. In addition, common diseases can simply make a wheat crop unsalable for either food-grade or livestock feed. This challenge was tackled with farmer trainings that included significant production information by successful farmers, along with quality information provided by buyers.

Another unanticipated challenge was learning that flour variability is associated with the conditions of a specific growing season. The group knew different varieties would create flour quality differences. Temperature and moisture variability can produce different protein content in the same variety of grain, as can different soils. While this doesn't present a problem for larger mills that can blend flours (or for large mills buying large volumes of grain from the same area in North Dakota, for instance), it does present a problem for small mills selling grains from multiple farmers and counties within New York State. Consequently, grain and flour variability is now understood as an issue bakers must deal with. Those wishing for the flavor of heirloom varieties and who wish to cater to the customer willing to pay for the artisanal loaf of locally-produced wheat are also often willing to adjust their recipes to deal with local flour variability.

Increasing public awareness of locally-branded grains and breads was accomplished through a variety of activities, including events, pursuit of news articles, and Greenmarket's webpage. Detailed descriptions of activities associated with this goal can be found in the appendices.

Discussion of Results, Findings & Conclusions from the Pilot & Beyond

The *Farm to Bakery* pilot project sought to address a number of variables under a variety of themes including expanding the Northeast grains industry, encourage local sourcing of grains and flours, provide additional avenues for bakeries to expand their product offerings and highlight the use of local ingredients, and continue to foster relationships between upstate growers and millers with downstate bakeries. This project has identified a number of challenges in meeting these goals. However, despite some of the barriers identified in this report, there has been significant progress in many areas of Farm to Bakery in New York State that represent an expansion of the original scope of this project and include a larger effort being undertaken by people and organizations: NOFA-NY, NYSDAM, Glenda Neff, GrowNYC / Greenmarkets, OGRIN, Cornell University College of Agriculture and Life Sciences, private growers and millers, and bakeries. The following are a few highlights of this progress that the team has seen to date.

- ***Bakers express a commitment to working with local flour***

Over the years, and through such events like the Farm to Bakery field day at Wild Hive and the NOFA conference— bakers, growers and millers have been able to converse about the different aspects of producing wheat and baking bread specifically. Bakers are becoming more educated on the qualities of wheat, such as protein content, gluten quality, spring and winter varieties. As a result bakeries have indicated a willingness to work with the fluctuations in flour as long as they could be informed of: changes when a season, batch, or variety is altered and in corresponding fluctuations changes in protein content and falling number. This exchange encourages a deepened and consistent communication between bakers and millers, millers and growers, that we believe will continue beyond this grant project.

In the past, conversations and information exchange with growers has been missing from cooking and baking schools, as well as training programs. And despite these barriers, several Greenmarket bakers embrace working with regional grains, which will inevitably have its quirks as it is not from a homogenized commodity system. This reflects a major shift from the bakers saying, *they cannot grow what we need* to a willingness to *work with what we can grow*.

- ***Warthog Flour is desirable and useable despite low protein content***

2011 was the first major harvest of Warthog, a winter wheat variety that grows well in New York and had sparked interest from bakers at the January 2010 tasting hosted by Greenmarket and NOFA-NY. The wet growing season in 2011 produced grain that had low protein content. Farmer Ground Flour had harvested over 100 acres of Warthog, yet was blending it in to their all-purpose flour because they thought it was poor bread flour. At the NOFA conference, bakers were asked to bring products they were making with regional flour and to be prepared to talk about working with those flours. Two bakers made bread using 100% Warthog flour. This was a revelation for the bakers, millers, and growers. Both bakers were enthusiastic about the Warthog stating that it had good flavor and they liked the bread they were able to make, despite its low protein content.

- ***Relationships are developing between bakers and millers/growers***

Bakers’ feedback has been significant for the millers and growers because it gives them confidence to grow, mill, and market flour when they see that good bread can be made from New York flour. In addition, they can attach an identity to different flour varieties now that they have a better understanding of their character and attributes, as well as positive feedback from bakers.

- ***Labels featuring local flour are producing higher revenues***

In 2009, Keith Cohen of Orwasher’s/Oven Artisans produced a 100% New York State wheat bread using Farmer Ground Flour’s certified organic whole wheat flour. The “Ultimate Whole Wheat” weighs two pounds and retails for \$8 (half loaves are also available). Orwasher’s Ultimate Whole Wheat is available at Greenmarket and several storefront locations in the city. The bread consistently sells out at Greenmarket. Production is currently about 600-800 loaves a week. This is not a large volume on a commercial scale, but proves that there is a market for bread made with higher quality flour. <http://nymag.com/restaurants/features/59208/> Orwasher’s/Oven Artisans report that since they developed this bread “everyone wants to talk to us”. People seek them out as the baker using local flour and they have now developed three additional breads featuring local flour.

- ***The diversity of the markets for local grains is increasing***

There has been an increase in overall diversity of grain production in the region. More farmers are growing winter wheat, emmer, oats, rye, barley, and corn as demand from not only bakers and chefs is rising, but brewers and distillers are also seeking to source regional grains. Inspired by the conversations facilitated by Farm to Bakery, several bakers have started to incorporate buckwheat into their baked goods. There is an understanding of how choices of flour used will ultimately impact the preservation of open space farm land, health of the soil and the viability of regional farms. Einkorn (which is currently only available through field trials) may enter into the grain stream on the commercial level in small quantities. Below is a sample list of growers who are now selling some of their grain to breweries and distilleries.

Growers

Thor Oechsner: rye and emmer

Klaas Martens: more barley,
emmer, rye, einkorn

Erick Smith: corn, oats, emmer,
and soft wheat.

Pete Gianforte: wheat, spelt,
oats, corn

Breweries

Tundra

Brooklyn Brewery

Kelso Brewery

Distilleries

Tuthilltown

Breuckelen Distilling

New York Distilling
Company

- ***Regional Grains are getting noticed by those outside of the agricultural industry***

During the course of this grant project Greenmarket have seen tremendous growth in the use of regional grains and flour in New York City. In December of 2011, New York Magazine declared, “Why Bread is having a Moment. It’s a crackly-crusted, open-crumbed, ***local floured*** moment in dough”. This declaration, from one of the City’s most important and influential food

critics, has set the standard for artisan bread as that which contains “local flour”. Demand now far outstrips supply and the future for regional flour looks quite promising.
<http://nymag.com/restaurants/features/new-wave-breads-2011-12/>

Challenges and Lessons Learned

The project team undertook a considerably large scope when considering the challenges that have been noted throughout this report with regards to the different aspects of New York State’s grain industry. The following is a description of the primary challenges we encountered throughout the project (at both the large and small scales):

- Communication between matches
- Maintaining participation
- Growing product in difficult conditions
- Consistent quality and availability
- Farmer knowledge
- On-Farm infrastructure
- Miller capacity
- Competitive and variable pricing

Communication between matches served as a major barrier to the project. As discussed in detail elsewhere in this report, the project team had to facilitate much of the communications between miller and baker participants in order to keep the project moving forward. Participants on both supply and buyer sides would forget details of project—creating confusion about product and process, and also rarely followed up with one another about the results of the flour testing.

Maintaining participation amongst the baking cohort throughout the life of the project posed an additional challenge. Bakers were provided free flour to test. And while many of them are small businesses that operate under extreme time constraints and wearing many different hats, it may have been more productive for them to purchase a certain volume of flour in order to encourage greater commitment.

Growing product in difficult conditions is a reality for New York State farmers. The east coast was hard hit by wet weather in 2011 (Hurricanes Irene and Lee), damaging a significant amount of New York State’s agricultural areas, including many of the farms that were supplying product to participant millers.

A consistent supply of good quality grain from regional growers was identified as a challenge by many of the mills. Besides volume, mills need consistent quality – clean, moisture content at or less than 14%, zero vomitoxin, and appropriate protein content. Demand for local flour continues to outpace the supply, as was apparent by December 2010 when the demand for “local” flour easily outstripped the supply milled from New York grains.¹

¹ Exact volume of local grain purchased was not provided by most of the mills. Champlain Valley Milling has long-standing relationships with grain growers in New York and Vermont. Less than 5% of the more than 100,000 bushels of wheat CVM mills each year is able to be sourced from local growers. North Country Farms is co-owned by a dairy and field crop farmer, Ron Robbins. Besides his own wheat crop, Robbins is working with other growers in his region to assure a supply of quality wheat as the mill business grows. NCF purchased 30,000 bushels of local wheat harvested in 2010. Another mill pointed out that because of a new customer, another 100 acres of wheat would be planted in the spring of 2011. Farmer Ground farmer-owners were also working with other growers to keep the mill supplied.

There is a **farmer knowledge gap** regarding management practices needed to produce food-grade wheat, rather than other livestock grains. As the food-grade grain market is relatively young in New York State, there is a significant amount of technical assistance needed to support growers as they learn to grow this new product and meet the quality standards required by bakers.

The lack of **on-farm infrastructure** continued to be identified as a barrier to increased production to many farmers, as well as rural communities. This included a lack of sufficient grain drying storage, processing equipment, and infrastructure. In addition, if farmers do not own a combine, the price of field equipment can also be a daunting hurdle. Grain equipment is difficult to share, since grains tend to ripen in a geographic area at the same time, so sharing models is not necessarily a viable solution.

Miller capacity was an unforeseen issue. The smaller mills reached full capacity in terms of meeting demand and could not take on more customers—which led the project team to stop enlisting baker participants. Some small mills wish to remain small, while others are interested in expanding, but all expressed a need for capital or grants to do so.

National and global **prices of** soy and corn rose significantly during 2011, caused in part by the severe weather across the United States and in other countries. As a result, farmers were more likely to plant soy and corn rather than wheat, and to grow for livestock feed rather than food-grade purposes. Since price is always an incentive, high prices for crops that are easy to grow will continue to be a disincentive to switching to or expanding into food-grade wheat production.

Recommendations for Future Research and Next Steps

The report has identified several positive outcomes from the *Farm to Bakery* pilot and the other research and trials that are being conducted throughout New York State. The expansion of the food-grade grain industry is a statewide economic development opportunity that stands to create jobs in New York's rural areas for farmers and millers. The increasing availability of local grains also helps to create demand for locally manufactured products which contributes to the retention of existing jobs in the downstate region. Entities including New York State Department of Agriculture & Markets as well as the Regional Economic Development Councils need to collaborate to design and execute projects that will facilitate the expansion of this work.

1. ***Assess opportunities & finance formal training for farmers seeking to grow food-grade grains***

Farmers require additional training and access to capital to produce food-grade grains, as well as to clean and store them. In addition to production information, producers need market training, since changing to a different crop and market may be perceived as both difficult and risky. The topics and issues covered at the farmer training events (i.e. variety availability and trialing results, what constitutes "clean" grain, weed control, equipment needs, marketing, selling to a broker, start-ups, etc.) during this pilot project provide a foundation for a curriculum that would be useful to new and existing growers. This investment is critical to ensuring the viability of the expanding industry.

2. ***Create opportunities for millers and bakers to network & disseminate pilot findings***

The relationship building between the millers and bakers was a key aspect to the success of the *Farm to Bakery* pilot project. Face-to-face interactions present opportunities for suppliers and buyers to talk with one another about needs, issues, and best practices. This kind of interaction is expected to continue past the life of the pilot project by those involved and should also be pursued by those wishing to promote the use of locally produced flour. Those working with the three levels of involved parties in this pilot – farmers, millers, and bakers - should continue to incorporate networking opportunities into their programming to foster the business relationships. In addition, the project's finding that farmers, millers and bakers working together is a necessary component of making the local grain system work, should be used to expand product acceptability and use.

3. ***Develop funding sources that will support the needed infrastructure in grain-producing parts on New York State***

Farmers have traditionally financed their equipment needs with loans or savings. However, the risks associated with food-grade grain production are basically weather-related and can result in a total loss of crop or significant loss of value. Both New York City and State governments should work together to develop funding opportunities to continue to encourage farmer and rural community investment that also acknowledges the risks associated with farm expansion into food-grade grains.

Contribution of Public and Private Agency Cooperators and Partners

There were four key organizational members that worked together throughout the course of the pilot projects: NYIRN, NYSDAM, Greenmarket/Grow NYC and NOFA-NY.

NYIRN's staff person, **Amy Anderson**, Industrial Industry Specialist, served as the project manager for the *Farm to Bakery* pilot. In this role, NYIRN oversaw the general coordination of the project team which included executing the internal work plan, grant reporting, and group communications. Outside of the administrative duties, NYIRN conducted the initial demand-side research for the pilot and submitted contact information and grains and flour volumes to NYSDAM consultant Glenda Neff. Externally, NYIRN served as the point of contact for the wholesale bakeries throughout the course of the project and coordinated event activities for the miller-baker event held at Wild Hive Farm in Clinton Corners, NY.

NYSDAM led the team in determining the project's scope of work and utilized its network of upstate millers and downstate wholesale bakeries to elicit participation in the pilot program. **Christina Grace, Bob Lewis and Sarah Johnston** all worked on the project. In addition, NYSDAM contracted with **Glenda Neff**, a consultant, to complete many of the project's tasks. Ms. Neff was the primary point of contact with the mills in New York State, and also with farmers. She developed a database of growers, millers, post-harvest service providers and distributors who are currently part of the local grains system in New York State. Ms. Neff enlisted the mills for the matchmaking activities and coordinated the mills' participation in flour trials. Ms. Neff promoted and did outreach at several grower workshops as well as organizing Farm to Bakery educational programs for the growers with millers and bakers.

Greenmarket / Grow NYC oversees a large network of farmer markets throughout New York City. The organization utilized its network of growers and buyers to solicit participation in the pilot project, provided technical content regarding New York State's grain industry, developed the *Grains Guide* for grains and sourcing information, and contributed to the general management of the project. **June Russell**, who wears multiple hats at Greenmarket, contributed to the success of events, created the media buzz around the topic of locally grown grains for artisanal breads and otherwise is connecting growers, bakers and millers via the Greenmarket website.

Northeast Organic Farming Association- NY (NOFA-NY) provided technical assistance surrounding the farming and milling aspects of the project throughout the life of the grant. In addition, the organization helped to identify existing as well as potential growers and millers for the project. **Kate Mendenhall**, the organization's Executive Director and **Thor Oschener**, farmer advisor, worked closely with Glenda Neff on the demand-side of the project. NOFA-NY hosted the *Scaling-Up the Northeast Grains System: Linking Farmers, Millers and Bakers at 25th* Annual NOFA-NY Winter Conference, January 20, 2012.

APPENDICES

Goal 1

Foster Collaborative Business Relationships between Producers, Millers & Prospective Baker Customers through Matchmaking

There were four objectives we accomplished in the first six months of the project. These were: compile in-depth demand-side information from bakers; compile supply data from participating growers and millers; identify sourcing “matches” and encourage trade between the parties; and, formalize the matchmaking process within NYIRN and NYSDAM.

Our methodology for this consisted of soliciting participation from both growers/millers and bakers to enlist them initially in a direct sourcing relationship where the miller would sell the flour they had in existing inventory to a baker. The project team would then recruit that baker to participate in testing additional flour samples and provide feedback to the miller on the performance of that flour. And finally, the team would develop a specific strategy in which to assist the growers and millers in expanding their capacity by providing educational opportunities about market trends and technical assistance and identify pathways for capital purchasing.

The methodology regarding the direct sourcing portion of the project shifted after a few initial conversations with both the bakers and milling companies. The primary issue was that sourcing requests from the bakers were too small to make the sales financially feasible for the millers. Conversely, the commodity product bakers required more flour than could be regularly supplied by the millers. In addition, it was obvious that brokering these business relationships required a multi-layered approach greater than simply introducing the two businesses. It was determined by the project team that the flour trials presented a better opportunity to facilitate these new relationships and thus have a greater chance turning into lasting sourcing relationships.

New York City Bakeries

The project team developed an outreach campaign to assess the current usage of locally harvested grains and flours amongst New York City bakeries, as well as gauge their interest in testing New York State milled flours in their products. NYIRN, NYSDAM, and Greenmarket combined their respective contact lists of companies to create a single list of potential participants. The campaign had three significant steps (including several one-on-one email exchanges and telephone conversations). Recruitment activities included:

1. Promoting the *Farm to Bakery* pilot project via NYIRN’s monthly newsletter (over 800 manufacturers), email blasts (to the newsletter list as well a specific baker list of 130 companies), fliers distributed at New York City’s *Fancy Food Show*, and one-on-one telephone conversations (*Flier Appendix 1*);
2. A survey that inquired about bakers’ current usage of grains and flours as well as other variables such as flour characteristics, packaging, and distribution information (*Survey Appendix 2*); and
3. Follow up interviews with those that responded to the original survey to further explain the project goals and objectives and confirm participation in the pilot.

After conducting some initial background research on the bakeries, combined with the volume of flour each requested for testing, the project team determined that there were two distinct sizes of bakeries—small/medium sized (annual revenue was less than \$1 million) and large scale bakers (annual revenue was greater than \$1 million). Information on current distribution was inconsistent, with several bakers noting that they were searching for a distributor. Packaging was not a factor in how ingredients were ordered. In addition, there were four baking companies that initiated contact regarding participation in the pilot, but NYIRN was unable to reach them for further follow up.

The team developed a list of 11 small and medium size bakeries and three large bakeries as prospective participants. The following table lists the bakeries and their primary products.

Table 1 Small / Medium Wholesale Bakeries Prospective Pilot Participants

<u>Company</u>	<u>Primary Products</u>	<u>Company</u>	<u>Primary Products</u>
Angel's Bakery Joe Angel (President) 29 Norman Avenue Brooklyn, NY 11222 yossiangel@aol.com 718-389-1400	Muffins, cakes, and cookies	Fat Witch Bakery Pat Holding (President) 75 Ninth Avenue New York, NY 10011 patwitch@fatwitch.com 212-807-1335	Brownies
Baked NYC Eric Wolitzsky 359 Van Brunt Street Brooklyn, NY 11231 ericwolitzky@msn.com 718-222-0345	Pastries	Nordic Breads Simo Kuusisto simo@nordicbreads.com Queens, NY	Finnish style bread
Betsy's Place Inc Peter Singer (President) 1187 E 156th St Bronx, NY 10474 petersinger@betsysplace.com 718-620-8503	Cookies and brownies	Oven Artisans (formerly Orwasher's) Terrence Geary (Operations Manager) 308 E. 78th Street New York, NY 10021 terrence@ovenartisans.com 212-288-6569 x13	Artisanal breads
Blue Sky Bakery Erik Goetze (President) 53 5th Avenue Brooklyn, NY 11217 blueskybakery@aol.com 718-783-4123	Muffins and pastries	Scratch Bread Matthew Tilden scratchbread@gmail.com	Artisanal breads
Brick City Baking Company Wendy Louie (President) 96-16 Atlantic Avenue Ozone Park, NY 11416 wendy@brickcitybaking.com 718-925-9215	Artisan breads and pastries	Sullivan Street Bakery Jeff Hughes 212-265-5580 jeff@sullivanstreetbakery.com	Bread
Damascus Ed Mafoud (Owner) 56 Gold Street Brooklyn, NY 11201 edmafoud@damascusbakery.com 718-855-1456	Pitas, wraps, and breads		

Table 2 Large Wholesale Bakeries *Prospective* Pilot Participants

<u>Company</u>	<u>Primary Products</u>
Balthazar Paula Oland (Baker) b@balthazarbakery.com 201-503-9717 New York, NY	Breads and pastries
City Bakery (The) John Sullivan (Owner) 3 W 18th Street New York, NY 10011 212-366-1414 jcsulliv20@gmail.com	Breads and pastries
Sunrise Bakery Frank LeFerlita, Jr 4564 2nd Avenue Brooklyn, NY 11232 frank@sunrisebakery.org 718-499-0800	Breads and rolls

New York State Mills

During the fall and winter of 2010-2011, NYSDAM consultant Glenda Neff researched mills in New York and Pennsylvania to create a list of mills that purchase food-grade grains grown in New York. The consultant designed a questionnaire to gather the following information from prospective mills which included the following topics:

- Available flour products
- In-house equipment and capacity
- Minimums for custom orders
- Grain prices for the 2010 harvest - organic and conventionally-grown
- Current sales & distribution options into New York City
- Packaging options
- Food quality, safety, and organic certifications
- Specs and testing results provided to customers on grain and flour quality
- Unmet demand: grains that cannot be sourced or processed locally

After phone interviews and site visits, seven were identified as prospective participants to match with New York City bakeries for purchasing and flour trials (See Table 3). The seven mills can be categorized first by capacity: three have relatively larger capacity with roller mills; four are using granite stone mills.

The mills that have been developing the local flour market are working primarily with certified organic farms. Four of the seven mills as noted in the table had organic certification in early 2011. Farmer Ground Flour was milling only certified-organic grains primarily from its two farmer-owners and acquired certification by the end of this project. Wild Hive is committed to sourcing primarily local organically-grown grain. North Country Farms is the only mill purchasing conventionally-grown wheat. None of the mills use bleach or bromates in their flour.

Table 3 New York State Miller Prospective Pilot Participants

<u>Mill</u>	<u>Flour Type</u>	<u>Mill Type & Capacity</u>	<u>Organic Certification</u>	<u>New York City Distribution</u>
The Birkett Mills Cliff Orr Penn Yan, NY 315-536-3311 x7107 custserv@thebirkettmills.com www.thebirkettmills.com	buckwheat, corn	Roller / buy from New York growers	NOFA-NY	most truckloads; smaller orders via Regional Access
Champlain Valley Milling Sam Sherman Westport, NY 518-962-4711 shermans_cvm@hotmail.com	rye, spelt, emmer “Greenmarket blend” - 15% regionally-grown hard & soft wheat	Roller / high-quality grain cleaning and testing equipment	NOFA-VT	ACE Naturals Regional Access United Natural
Log City Milling David Smith King Ferry, NY 315-364-7192 lakedistilling@gmail.com http://logcitymilling.com/	soft wheat	Roller / buy from New York growers	GOA - Global Organic Alliance	none yet
McGeary Organics Daisy Organic Flours David Poorbaugh Lancaster, PA 717-394-6843 dpoorbaugh@mcgearygrain.com http://daisyflour.com	soft wheat, spelt	Roller / “small batch artisan”	PA Certified Organic	Basis Lancaster Farm Fresh Cooperative and truck
Farmer Ground Flour Greg Mol Trumansburg, NY 607-327-0166 gregomol@gmail.com www.farmergroundflour.com	hard & soft wheat, rye, spelt, buckwheat, corn	Granite Stone (30 inch)	applied & certified 2011 NOFA-NY	Cayuga Pure Organics
North Country Farms Kevin Richardson Watertown, NY 315-771-0633 richardson@ncfarms.net www.ncfarms.net	soft wheat	Granite Stone (30 inch)		none yet
Wild Hive Farm Don Lewis Clinton Corners, NY 845-266-5863 http://www.wildhivefarm.com	hard & soft wheat, rye, spelt, corn	Granite Stone (30 inch)		delivers into NYC

Goal 2

Provide detailed usability feedback on hard and soft wheat products from bread bakers to determine which varieties, milling properties and packaging best meet market needs

Trial Structure

The original project proposal included an initial phase of introducing and facilitating business relationships between millers and bakeries, with flour testing to follow. However, once the project started, it was preferable to start testing flour in early 2011 from wheat harvested in 2010 due to the timing of harvests and availability of different flours. A second round of tests was scheduled for the fall from wheat harvested in 2011. Each bakery was asked to do three tests, but for the purposes of learning from the tests, they need not be done at three different times. It was more valuable for bakers to first test flour from the 2010 harvest and then again with the 2011 harvest, to learn how flours and their baking characteristics might change from year to year.

The flour trials were also an avenue for millers and bakers to get to know each other and develop a business relationship. The test phase allowed time for the mills not yet distributing in New York City to investigate the options of doing sales and delivery direct or through distributors.

Based on the information gathered from the mills (which indicated that supplying a consistent amount of hard wheat product would be difficult to maintain), the project team decided to expand the offerings for testing beyond hard wheat (bread flour) to include soft wheat (pastry and all-purpose flours), spelt, rye and emmer flour. Organic growers are particularly interested in spelt and emmer as they can have good yields on relatively poor soils. Spelt has gained the attention of consumers and bakers for its low-gluten quality and nutty flavor characteristics. And yet there was little information on the usability and performance of these local flours in final baked form. *Farm to Bakery* provided the opportunity for additional information gathering related to these products.

For bakeries that were already using some New York State flour, testing new varieties such as was done with spelt by Orwasher's Bakery, could lead to expanded sales. Indeed, Orwasher's introduced a new spelt/quinoa loaf in early 2012 that uses 400 pounds of whole wheat and 100 pounds of spelt flour each week from Farmer Ground Flour. The miller's willingness to customize the grind or blend in a flour to satisfy a bakery depends on the volume and purchasing frequency.

It should be noted that emmer and spelt have tough hulls which are not removed by a combine, requiring de-hulling before they can be milled. Lack of de-hulling equipment and the cost of the process were identified by millers and farmers as barriers. Currently there are only two high volume de-hulling service providers for growers—an organic grower in New York and another in Pennsylvania. During the team's initial interviews with the mills, a few reported that they are considering investing in de-hulling equipment. Therefore, to reconcile the lack of consistent wheat supply and to open opportunities for additional grain information, bakers were offered a variety of flour types for testing. Several of the baker participants took advantage of the offer. The following is a listing of the flour by type that was tested during the flour trials.

Table 4 Flour Types Used in Flour Trials

Flour Types Used in Flour Trials
Emmer ²
Rye
Spelt
Wheat (Hard)- conventional
Wheat (Hard)- organic
Wheat (Soft)- conventional
Wheat (Soft)- organic

Flour Trial Feedback Form

The project team created a feedback form for the bakers testing the flour to track performance and provide insight into the usability of the flour in baked goods (*Form Appendix 3*). The trials were meant to be an opportunity for the baker to choose a flour of interest and use it in their own recipes, not a scientific evaluation of the flour. The team asked Sam Sherman of Champlain Valley Milling to provide technical assistance in the design of the feedback instrument as he had previous experience in this arena. His insight was helpful in determining what kind of information would be useful to both the bakers and millers. The feedback forms were passed on to the millers with encouragement to contact the bakeries and discuss the results in an effort to continue to cultivate the business relationship.

Summary of Bakery - Mill Matches

Ms. Neff used the information provided by the bakeries which included the flour type, minimum volume required to undertake testing, and preferences of conventional vs. organic flour and compared it to the product information she had received from the mills in order to make the best match possible. Pricing tended not to be discussed during this phase (at least initially) as the information was difficult to obtain from the mills. There is a general understanding that New York State flour is more expensive than traditional commodity flour. And the team had some concerns that the higher price point would discourage bakeries to at least test the local flour.

Table 5 Flour Trial Matches Rounds 1 and 2 is a summary of the matches including the bakery and its primary products, the flour type(s) requested for testing (and protein content if available), and the mill with whom it was matched. Both the hard and soft wheat varieties were by far the most requested flour types for testing as the majority of bakers were making bread. However, bakeries including Balthazar, City Bakery, Nordic Breads, and Orwashers also tested spelt and/or rye. Testing quantities for small and medium sized bakeries ranged from 10-50 pounds (with an exception of Orwashers who had requested 100 pounds of emmer and spelt); while volumes for the large bakeries were between 100-200 pounds.³

² Emmer was offered to bakers for testing, but was not tested due to high cost.

³ The volume of flour requested for the test did not always turn out to be the amount that was supplied by the miller. This was difficult for the team to track as the participants did not always keep clear records of the type and quantity of flour that was sent and received.

Unfortunately, there were five bakeries and three mill participants who ultimately were unable to be matched. Reasons for this include pricing, lack of time on behalf of the baker to conduct tests, or the volume of flour requested was too high for the current supply of local flour. One of the mills has primarily New York-grown buckwheat flour, which it was decided would not be included in the menu of flours available for the trials. Log City was unable to participate at the time of trials. And while the project team worked closely with McGeary Organics / Daisy Organic Flours to match them with one of the larger bakeries, they eventually decided that the project was not a good fit for them at the present time.

Table 5 Flour Trial Matches Rounds 1 and 2

		<u>Trial 1</u>		<u>Trial 2</u>	
<u>Company</u>	<u>Primary Products</u>	<u>Flour Type</u>	<u>Mill</u>	<u>Flour Type</u>	<u>Mill</u>
Baked NYC	Pastries	Hard wheat 10lbs 12-14% All Purpose 20lbs 9-11% Soft wheat 20lbs *conventional	Wild Hive Farm Mill	Did not participate	
Balthazar	Breads and pastries	Hard wheat 200lbs Soft wheat 200lbs *organic	Champlain Valley Milling	Hard red winter wheat 100 lbs.	Champlain Valley Milling
Betsy's Place Inc	Cookies and brownies	Hard wheat- high gluten 50lbs Soft wheat-cake flour 50lbs Hard wheat- 50 lbs *conventional	Wild Hive Farm Mill	Did not participate	
Blue Sky Bakery	Muffins and pastries	Unbleached 50 lbs	North Country Farms	Soft wheat Frederick 8.3% Pastry 25lbs. All Purpose 25 lbs	Wild Hive
Brick City Baking Company	Artisan breads and pastries	Postponed testing until 2011 harvest, 2 nd round of trials	Champlain Valley Milling	White Bread "Mt. Marcy" *organic or conventional	Champlain Valley Milling
City Bakery (The)	Breads and pastries	Hard wheat 100lbs Soft wheat 100lbs Spelt 100lbs *organic	Champlain Valley Milling	Did not participate	
<u>Company</u>	<u>Primary Products</u>	<u>Flour Type</u>	<u>Mill</u>	<u>Flour Type</u>	<u>Mill</u>

		<u>Trial 1</u>		<u>Trial 2</u>	
Fat Witch Bakery	Brownies	Unbleached 25lbs *conventional	North Country Farms Wild Hive Farm Mill	Did not participate	
Hot Bread Kitchen	Artisanal breads	Rye 10lbs	Farmer Ground	Spelt 10lbs Buckwheat 20lbs	Farmer Ground
Nordic Breads	Finnish style bread	Rye *organic	Farmer Ground	Did not participate	
Oven Artisans (formerly Orwasher's)	Artisanal breads	Hard wheat 50lbs Emmer 100lbs Spelt 100lbs *organic or conventional	Cayuga Pure Organics (brand) Farmer Ground (mill)	Did not participate	
Runner and Stone				Spelt 10lbs	Farmer Ground

Table 6 Bakeries Unable to be Matched

<u>Bakery</u>	<u>Reason for No Match</u>
Angel's Bakery <i>Muffins, cakes, and cookies</i>	The bakery spoke with one of the participant millers and determined that the cost of the flour was too high to meet their price point for ingredients. They agreed that there was no point in testing the flour if he could not ultimately become a purchasing customer.
Damascus <i>Pitas, wraps, and breads</i>	The project team met with the baker and toured the facility. Unfortunately, Damascus became unavailable to participate in the flour testing due to internal business needs. However, Damascus has had contact with Champlain Valley Mill and may purchase flour from the mill when they are ready.
Scratch Bread <i>Artisanal breads</i>	The bakery showed initial interest in participating. However, like many of the start-up bakeries, time constraints prohibited the company's ability to test flour.
Miss Grimble Associates Inc. <i>Cheesecakes, pies, tortes, and cakes</i>	The project team was unable to identify a miller that carried the flour type required by the bakery. Miss Grimble Associates maintains its interest in testing local flour.
Sunrise Bakery <i>Breads and rolls</i>	The bakery's quantities required for testing and eventual purchase were too substantial for the current quantity available by the participating millers.

<u>Bakery</u>	<u>Reason for No Match</u>
Sullivan Street Bakery Breads	Sullivan Street began purchasing flour from North Country Farms without participating in the flour tests. The team had hoped to receive feedback from the bakery to contribute to the body of data being collected on the performance of New York State flour; however, the team did not receive the feedback form in time for this report.

Table 7 Millers Unable to be Matched

<u>Mill</u>	<u>Reason for No Match</u>
The Birkett Mills	Birkett's New York flour was buckwheat, which was not included in the types of flour to be tested.
Log City Milling	Unable to participate at the time of the project's start date.
McGeary Organics Daisy Organic Flours	The project team worked closely with the miller to match with one of the larger participating bakeries; but ultimately the miller determined that the project was not a good fit for them.

Flour Trial Results

The following is a series of tables organized by the bakery – mill matches and highlights of the test results conducted in Trial 1 and Trial 2 of this pilot. The information in the tables include: the type of flour used in the test (including amount and protein content), the type of baked product and its yield, and the usability of the flour in terms of its substitution for a current brand, the baker's willingness to work with the miller to adjust the flour, and their willingness to adjust the recipe.⁴

In Trial 1, there were 9 bakeries, 4 millers, and 4 types and 6 varieties of flour tested.

In Trial 2, there were 4 bakeries, 3 millers, 5 types of flour and 3 varieties of wheat tested

The testing process did encourage individual bakers to think about their likes/dislikes, what adjustments they could make to their recipes, and if they would work with the miller on changes to the grind or specifications of the flour. The bakers' experience as seen by their feedback was valuable for learning how these local flours have unique characteristics of aroma and flavor versus the commodity flour of which they are accustomed. They also reported how they adjusted

⁴ Wheat tested in Trial 1, was from the 2010 harvest. Wheat tested in Trial 2, was from the 2011 harvest. The Danko rye was from the 2011 harvest.

water, rising and mixing during the test, suggested how they might adjust the recipe for the flour tested, or use the flour in a different or new product.

Unfortunately, there were a couple of instances where bakeries received flour and did not return their feedback form to the project team. Even after repeated follow up by various team members, the bakery was either completely unreachable to date of this report or it provided general reactions to the flour but not on the formal feedback form. This has been noted next to the respective bakery.

Small / Medium Size Bakeries

Baked NYC & Wild Hive Farm Mill

Distributor: Drop ship

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Soft Pretzels Yield: 8 pretzels	Hard wheat Protein: 12-14% 11 ounces used in single test	No	Yes	Yes	+ Taste was fantastic. Pureness of flavor. - Slow rise/proof, tore easily, weak oven spring
	Danish Yield: 2 Danish (16-20 pieces)	Soft Winter Wheat - all purpose Protein 9-11% 1 kg used in single test	No	Yes	No	+ Taste & texture great - Hard to work with dough; proofing difficult; very little oven spring
	White cake	Soft Winter Wheat - Pastry Flour 9% 400 g	No	No	No	+ Very smooth, didn't need much sifting - Wheaty flavor too strong for a cake; texture gummy
Notes: Baked did not participate in the second round of trials. The primary contact, the Head Baker, left the company and they were not ready to continue with the flour tests.						

Betsy's Place & Wild Hive Farm Mill

Distributor: Drop ship

	Test Product	Flour Profile	Usability			Notes
			Substitute for current brand as is?	Willing to work with miller to adjust flour?	Willing to adjust recipe?	
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>				<i>What did you like/not like about this flour?</i>
Trial 1	Cookies Yield: No number indicated Test Date: 7/3/11	Hard Wheat Protein: None indicated 14lbs used in single test	No	No	No	
Notes: Betsy's Place reported that they like the idea of using local flour, but they anticipated pricing to be a barrier. They seemed unwilling to talk with the miller about pricing and delivery requirements. They did not participate in the second round of trials.						

Blue Sky Bakery & North Country Farms

Distributor: Dairyland/Chef's Warehouse

	Test Product	Flour Profile	Usability			Notes
			Substitute for current brand as is?	Willing to work with miller to adjust flour?	Willing to adjust recipe?	
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>				<i>What did you like/not like about this flour?</i>
Trial 1	White Flour Muffins with blueberries and mangoes Yield: 54 muffins Test Date: 7/20/11	Wheat- Unbleached All-Purpose Protein: 9-11% 24 C used in single test	No	Yes	Yes	+ Local (met the miller) and high quality - Denser than our standard flour; difficulty arranging delivery
	Pumpkin Muffins with Apples and Walnuts Yield: 48 Muffins Test Date: 7/10/11	Wheat- Unbleached All-Purpose Protein: 9-11% 12 C used in single test	No	Yes	Yes	same
	Chocolate Chip Banana Bread Yield: 3 loaves Test Date: 7/27/11	Wheat- Unbleached All-Purpose Protein: 9-11% 6 C used in single test	Yes	Yes	Yes	same NCF flour worked well in this recipe
Notes: There was an instance in one delivery where flour quality was insufficient for the bakery.						

Blue Sky Bakery & Wild Hive Farm Mill

Distributor: Drop ship

	Test Product	Flour Profile	Usability			Notes
			Substitute for current brand as is?	Willing to work with miller to adjust flour?	Willing to adjust recipe?	
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>				<i>What did you like/not like about this flour?</i>
Trial 2		Wheat – All Purpose variety: Frederick Protein: 8.3%				
		Soft Wheat – Pastry variety: Frederick Protein: 8.3%				

Notes: Blue Sky Bakery is still undergoing its second round of tests and did not report feedback information at the completion date of this report.

Brick City Baking Company & Champlain Valley Milling

Distributor: Regional Access

	Test Product	Flour Profile	Usability			Notes
			Substitute for current brand as is?	Willing to work with miller to adjust flour?	Willing to adjust recipe?	
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>				<i>What did you like/not like about this flour?</i>
Trial 2	Rustic Loaf Yield: 5 Loaves Test date: 3/12/12	White bread flour—high organic Protein: none indicated 2200 grams used in single test	No	Yes	Yes	+ Nice slightly sour aroma & taste Not good oven spring. Need to adjust recipe and try testing again
	Rustic Batard Yield: 6 loaves Test date: 3/12/12	White bread flour Whole wheat Dark rye White rye 3600 grams	No	Yes	Yes	Need to test again
	French Baguette Yield: not given Test date: 3/14/12	White All-Purpose high-gluten Protein: none indicated 3000 grams used in single test	No	Yes	Yes	+ Nutty, slightly sour aroma and very good flavor
	Rustic Loaf Yield: 5 Loaves Test date: 3/19/12	White bread flour—high organic Protein: none indicated 2200 grams used in single test	No	Yes	Yes	+ Less sour aroma; not strong flavor but good – Nutty Adjustments to recipe worked; we can make more changes to recipe
	Rustic Batard Yield: 6 loaves Test date: 3/19/12	White bread flour Whole wheat Dark rye White rye 3600 grams	No	Yes	Yes	+ Nice, nutty whole wheat aroma. Product looked better than first test but recipe needs more work

Notes: Due to the lack of availability of New York State wheat at the time of testing, Brick City tested flour that was milled by Champlain Valley Mill from grains grown in Montana. While the bakery's feedback does not speak to the quality of local flour, the important aspect is that a relationship was formed between Brick City Bakery and Champlain Valley Mill. We believe the bakery will use local flour as supply is available.

Fat Witch Bakery & North Country Farms and Wild Hive Farm Mill

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Brownies	Unbleached 25lbs *conventional				
Notes: Fat Witch Bakery owner attended the Farm to Bakery tour of Wild Hive Farm Mill and wanted to test their flour. The owner purchased some pastry flour but was unable to test it. In addition, they also had an arrangement with North Country Farms to test its flour. Being a small operation, she was unable to continue participation after New York City was hit with severe wet weather and flooding.						

Hot Bread Kitchen Peter Endriss & Farmer Ground Flour

Distributor: Cayuga Pure Organics

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Prune Levain Yield: 1 Loaf Test date: 6/29/11	Whole Rye Flour Protein: none given 50 grams in each 500-gram loaf	Yes	Yes	Yes	+ Very nice, smokey, minerally aroma; nice flavor, fermented well - Coarse grind worked with this long fermentation, however it would be nice to have option of a finer grind
	Currant/Lemon Levain Yield: 1 Loaf Test date: 7/6/11	Whole Rye Flour 50 grams in each 500-gram loaf	Yes	Yes	Yes	+ Flavor very good, not too earthy/moldy. Flour ferments very well - Coarser grind meant adding more flour
	Currant/walnut Levain Test date: 7/13/11	Whole Rye Flour 50 grams in each 500-gram loaf	Yes	Yes	Yes	+ Nice, smokey flavor

Hot Bread Kitchen Sandy Kim & Farmer Ground Flour for Trial 2

Distributor: Regional Access

	Test Product	Flour Profile	Usability	Notes	Test Product	Flour Profile
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 2	Spelt Bread Test date: 3/26/12	Spelt Flour 2.5 Kg for 25 loaves	Yes	Yes	Yes	+ Roasted coffee aroma, slightly nutty & acidic flavor. The pre-ferment held great. Made a spelt poolish and flavor was mild but distinct. - quite strong & absorbed a bit more water
	Walnut Buckwheat Sticks (long loaves) Test date: 3/25/12	Buckwheat Flour 1200 grams for 20 loaves	Yes	Yes	Yes	+ Buttery aroma, good hearty crust, nutty, earthy flavor. The quality of this flour is amazing. Grind is perfect and has great baking attributes and flavor contribution.
Notes: Hot Bread Kitchen has been undergoing staffing changes for its head baker position. However, conversations with the bakery indicate that they are interested in expanding their purchasing of local flour.						

Nordic Breads & Farmer Ground Flour

Distributor: Drop ship

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Whole Grain Rye Bread (aka Finnish Ruis Bread) Yield: 1,000 Loaves Test date: 9/5/11	Rye Flour – Whole Grain Protein: 8.9% 150 lbs used in single test Variety: Danko 2011 harvest – different variety than Nordic Breads had been getting from Farmer Ground Flour	Yes	Yes	Yes	This flour has life, unlike same type coarser flour from wholesale distributor. + Absorbs water faster which prevents over-mixing. Works well with sourdough starter; proofing time shorter
Notes: Nordic Breads was already purchasing from Farmer Ground Flour and continues to do so. This was a test of a different variety of rye (Danko harvested 2011) than Nordic Breads had been using from Farmer Ground.						

Oven Artisans Inc dba Orwashers & Farmer Ground Flour

Distributor: Cayuga Pure Organics

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Spelt Quinoa Bread Yield: 80 loaves Test Date: 8/11	Whole Spelt Flour Protein: None provided 100 lbs	NA – this is a new product	Yes	Yes	+ Having spelt flour available allows us to produce an added value local product. Spelt has fairly high popular recognition with health conscious consumers. Sellable as a high fiber high protein product. We attained up to 110% hydration with this flour; note the recipe includes quinoa and raisins which take a lot of water. Working with this type of slack dough requires less hand on production time. - Cost is the biggest prohibitor with specialty flour and reliable availability can be an issue.
Notes: Orwasher’s added spelt-quinoa bread to its regular offerings and currently purchases 400 lbs whole wheat and 100 lbs spelt flour each week from Farmer Ground just for this product. Apart from the trials, Orwasher’s has incorporated North Country Farms High Extraction White flour into its “Swiss Health Bread” and is using 600 lbs/week.						

Runner & Stone (Peter Endriss) and Farmer Ground Flour

Distributor: Regional Access

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 2	Mixed flour Miche Test date: 3/10/12	Spelt Flour 300 grams per 2-Kg loaf	Yes	Yes	Yes	+ Nutty aroma. Coarse grind adds to the beauty of the crumb. Nice flavor - you can taste the grain - No negatives. Will definitely continue to use this flour.
Notes: Peter Endriss was a consultant to Hot Bread Kitchen during the first round of flour trials. He participated in the second round for his own bakery Runner & Stone, where he is using more flours from Farmer Ground Flour.						

Large Sized Bakeries

Balthazar & Champlain Valley Milling

Distributor: Regional Access

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1	Baguette Yield: 60 Baguettes	Wheat - New York White Flour Protein 11.28% 11.32 kg used in single test	No	No	No	+ Similar holey crumb which we like - Bread was drier and less tasty
Trial 2	Baguette Yield: 80 loaves Test Date: 1/24/12	Hard red winter wheat – AC Morley Protein: 8.64%, ash content: .579 15 Kg	No	No	Yes	+ Willing to make a different recipe for different use of this flour

City Bakery & Champlain Valley Mill

Distributor: unknown

	Test Product	Flour Profile	Usability			Notes
		<i>Flour Type and variety, Protein Level, and Quantity Used</i>	<i>Substitute for current brand as is?</i>	<i>Willing to work with miller to adjust flour?</i>	<i>Willing to adjust recipe?</i>	<i>What did you like/not like about this flour?</i>
Trial 1		Hard wheat 100lbs Soft wheat 100lbs Spelt 100lbs *organic				
Notes: Per the project team's records, City Bakery was scheduled to receive flour from Champlain Valley Mill. Unfortunately, neither the bakery nor the miller confirmed this as of the date of this report.						

Goal 3

Strengthen Supply Chains Between Growers, Millers and Bakers

The demand for New York State flour has been clearly demonstrated by both bakers (commercial and home) and the consumers of baked products. The challenge is to develop strategies in which to increase the amount of grains currently grown and expand the capacity of millers in order to meet this ever-increasing demand for the flour. The *Farm to Bakery* project was fortunate to attract the participation of several industry members who collectively have a substantial amount of knowledge and experience that spans from the agricultural aspects of this market through ultimate consumption. This section highlights some of the efforts and impacts which include: demonstrating demand for local grains, assisting growers, and assessing existing distribution systems.

Demonstrating Demand for Local Grains

Greenmarket has a unique role in the industry as one that helps build demand for regional flour through promotion and education. It has helped increase market demand by adding local flour to its litany of products sold through its network of farmers' markets throughout New York City. The demonstrated demand has helped to make the case for growers to go beyond growing grains solely for animal consumption and invest in those fit for human consumption.

Recent reports from all four of Farm to Bakery miller participants provide some insight to their own experiences in the increased demand for regional flour since 2010.

- Don Lewis of Wild Hive Farm has tripled his milling capacity and subsequent sales of regional flour.
- Kevin Richardson of North Country Farms recently reported his own sales increase. North Country Farms doubled their capacity by adding a second stone mill to meet demand.
- Farmer Ground Flour is constructing a new building, replacing its stone mill with one that can operate at a higher speed, and anticipates at least a three-fold increase in production.
- Sam Sherman of Champlain Valley reported that it has become significantly easier for them to sell New York State flour to their customers.

Assisting Growers

NOFA-NY team member Thor Oechsner provided technical assistance to farmers on growing wheat and other edible-food-grade grains throughout the entirety of the Farm to Bakery project. Thor's experience spans wheat variety selection, planting and fertilization, drying, cleaning, storage and marketing. His insight was valuable to field crop farmers with whom he shared in phone consultations and presentations at conferences, workshops, field days and webinars. Ron Robbins, a respected farmer and leader in New York State, shared his knowledge at the March 2011 *Growing Food-Grade Grains* workshop on wheat, prices and markets and why he decided to invest in a stone ground mill business to market local flour.

Alton Earnhardt, one of the first farmers to grow wheat on a large scale for miller Don Lewis, told bakers on the July 2011 tour of Wild Hive Mill about the reasons and challenges of growing

wheat for baking. Sam Sherman (Champlain Valley Milling), Don Lewis (Wild Hive Mill) and Greg Mol (Farmer Ground Flour) all shared knowledge about markets and quality requirements for baking at conferences, farm tours and webinars. This insight was particularly valuable to growers, bakers, and prospective new millers. Judy Gianforte, self-described “micro-miller” of grains grown on the farm she shares with husband Peter Gianforte, was an inspiration to farmers at the NOFA-NY conference who are looking to grow and direct market fresh flours to their customers at farmers’ markets, produce stands, and Community Supported Agriculture network.

Assessing Existing Distribution Systems

Distribution of “local/regional” products has long been cited as an issue for small-scale agriculture. Points of aggregation have been lacking and in order to preserve the integrity of the products, source identity, price point, partners and “value-chains” are necessary.

Upon surveying our participating mills, the project team found that all but one already had at least one channel for distribution into New York City. Two preferred to oversee their own distribution, presumably to maintain contact with existing and potential customers, considering the relative young age of their companies. To date, the project team identified two distributors that specialize in distributing regional products to wholesale bakeries in New York City: Lancaster Farm Fresh and Regional Access.

Table 8 Participant Miller Distribution Channels

Miller	Distribution
Champlain Valley	The company has the most distribution options of the participating millers—using Regional Access, Ace Natural, United Natural Foods and Associated Buyers.
Farmer Ground Flour	Was self-distributing through Cayuga Pure Organic and is now carried by Regional Access.
North Country Farms	Product is distributed by Regional Access and Dairyland, U.S.A./Chefs Warehouse
Wild Hive	Currently delivers directly to wholesale bakeries and partners with The Pampered Cow. The miller uses mail order for individual orders.

Initially, Greenmarket had sought to do a distribution pilot with its new venture, Wholesale Greenmarket and establish itself as a viable link between regional farmers and commercial buyers. The wholesale market would also offer a set of services to the growers and millers. Unfortunately, Wholesale Greenmarket is still considering locational prospects and seeking programmatic funding. While the aspects of the market are still developing, Greenmarket wanted to make its knowledge base of the grains and flour market more accessible by facilitating the connections between those looking to source regional grain products with those supply it. It has created a website to serve as a virtual hub for distribution.

Regional Grains is a website where the consumer can search to see what whole grains and flours are available, who has them, and how to purchase them. It was launched in March 2012 through email blasts, the Wholesale newsletter, Greenmarket channels such as the GrowNYC newsletter, blog, Facebook and Twitter. It provides the growers’ and millers’ contact information, current

distribution options, and information on the grains themselves. The site is primarily targeted to the wholesale buyer, baker or chef seeking simple and direct information.

Currently, Greenmarket is serving as the portal for this kind of sourcing information and is building both demand and supply for locally grown grains. As a result, the project team will continue to direct interested parties to this site for sourcing. Current organizations linking to the Wholesale Regional Grains Website include the University of Vermont, the Northern Grain Growers Association, and Smubhub, a Philadelphia based website that seeks to facilitate sourcing local products to restaurants. The website is housed on the Wholesale Greenmarket webpage. <http://www.grownyc.org/wholesale/grains> The site also now links to the Greenmarket and Regional Grain page. <http://www.grownyc.org/greenmarket/topics/regionalgrain> The Farm to Bakery project has fallen during a major re-vamping of the *Pride of NY* site hosted by NYSDAM. When the unveiling of the new, improved *Pride of NY* site occurs, local sourcing of grains and flours will be among its important attributes.

Since the *Regional Grains* website is relatively new, figures are not yet available. However, Greenmarket has received anecdotal information from mills who are reporting an increase in calls from interested parties. On April 29, 2012 the New Amsterdam market held a Bread Pavilion featuring 15 New York City bakeries. All bakeries were required to use regional flour in their products and for those who were not already sourcing regional flour, were referred to the *Regional Grains* website. Additional information about New Amsterdam's Bread Pavilion can be found here http://www.newamsterdammarket.org/2012/04_29.html

Goal 4

Increase Miller and Grower Capacity to Deliver Quality Flours Consistently

The team's conversations with bakers revealed that the vast majority purchase flour with little knowledge of its origins. Nor were bakers familiar with the multiple factors associated with grain production that influence quality, some which are within the grower's control and some that are not within the grower's control. A balance must be struck to continue to build demand from bakeries for local flour, while simultaneously expanding the education and capacity of New York State growers and millers to provide a consistent and quality product.

Over the course of two years, the project team designed and executed a multi-layered approach that provided a variety of training and tools to address the issues at all points of the supply chain. The strategy consisted of a combination of events, technical assistance, and the development of a grains sourcing website. Themes that were covered in these efforts included:

- Raising awareness about the availability of local grains/flours in the consumer market
- Growing, caring for, and ensuring quality of food-grade grains
- Baker education about how grains are grown and milled into flour in New York State
- Showcasing baked goods made with local flour
- Connecting bakers and millers to discuss respective needs for a successful business relationship
- Distribution opportunities

- Capturing feedback on the performance of local flour in baked goods

Growers interested in entering the food-grade market needed much more of an understanding of the multiple aspects of food-grade production, from varietal choices, fertilizers, weed control, cleaning and storage. A day-long training, half spent on marketing and half on production methods, was targeted at growers and held in March 2011 in the western part of the State, including the Finger Lakes. The sessions were taped and are available on the NYSDAM website at www.agriculture.ny.gov/AP/InsurancebyCrop.html. Due to response from the industry, production information was geared towards organic producers. Titles for the resources are:

- Organic Food Grain Marketing: Essex County Farmer, Miller & Market Expansion, March 15, 2011.
- Organic Food Grain Marketing: Organic Food Grade Production Considerations, with guest speakers Erick Smith, Mary-Howell Martens, Klaas Martens, Thor Oechsner, April 19, 2011 (Videos of March 14, 2011 Farm to Bakery Presentation, Geneva, NY)

At this training, a panel of business owners – bakery, distillery, and pasta maker – provided perspectives on their needs and the potential markets for local grains and flours. There were 32 farmers that attended as well as two Extension Educators, a SUNY agriculture professor, and two professional bakers.

Outreach to growers was conducted at the NOFA-NY winter conference and Cooperative Extension workshops, and through newsletters and listservs. In an attempt to estimate the potential supply after the 2011 harvest, the following information was requested from growers at these events via survey:

- Available food-grade grain varieties in storage from 2010 harvest;
- Grain varieties and acres planted in fall 2010; and
- Grain varieties and acres expected to be planted in spring 2011

Additional information was requested from attendees at the *Growing Food-Grade Grains* workshop:

- Equipment on-farm for harvesting, de-hulling, cleaning, grain storage;
- Custom services offered to other growers;
- Organic certification; and
- How grain is marketed and sold (via brokers, mills, distributors, or direct)

Out of over 50 growers who filled out the surveys, only one third had planted grain varieties intended for local food markets in the fall of 2010. Some had planted Warthog, a hard wheat variety that had been trialed by the Organic Growers Information Network. The surveys further revealed that organic growers are primarily the ones interested in growing small grains for the purposes of crop rotation and building the soil, as well as for diversifying markets and selling direct to local mills and bakery customers. Many survey respondents were very small acreage growers who are interested in micro-milling and marketing flour direct to their farmers' market or produce stand customers.⁵

Goal 5

Increase Public Awareness of Locally Branded Grains and Breads

Members of the *Farm to Bakery* project team held or participated in three major outreach events over the lifetime of the pilot project. These events were integral to the project in terms of soliciting participation for the pilot from both bakers and millers as well as providing a forum for education that included topics such as the history and future of New York State's grains industry, opportunities for local sourcing of New York State flour, bakers' experience in working with flour, and general issues surrounding the burgeoning industry. The following is a summary of the four events highlighting their purpose, aspects of each event as they relate to the pilot's theme, and press coverage.

Event 1: *Grains Week*, hosted by Greenmarket, June 10, 2010
<http://www.grownyc.org/greenmarket/topics/grainsweek>
Attendees: 500+
Press: *Grains Week* was covered in the national media. Amy Eddings interviewed June Russell on her show *Last Chance Foods* that aired on National Public Radio.
<http://culture.wnyc.org/articles/last-chance-foods/2010/dec/10/growing-grain-northeast-breadbasket/>

In November 2010, Greenmarket conceived of and hosted “Grains Week”, a week of promotional and educational programming designed to raise the profile of local grains to both the general public and retail consumers. In order to boost sales and education around fresh ground flour, Greenmarket collaborated with the New Amsterdam Market and the Rye Project to launch a week—long series of events. Grains Week featured five events as well as cooking demonstrations by New York City chefs using local grains. While attendance varied at each event, Greenmarket estimates over 500 people participated throughout the week.

Smorbord—a bread making demonstration using rye flour grown on Thor Oeschner's farm and ground at Farmer Ground Flour (an eventual participant in the *Farm to Bakery* pilot project).

Home Bakers Meet Up featured home and professional bakers who showcased baked goods (mostly breads), while also sharing trade secrets and asking each other questions.

Educated Eater Panel featured a culinary historian, a grower, a miller, a baker who presented on a range of topics including grain production, baking techniques, and the past, present, and future of grains grown in the Northeast.

<http://www.grownyc.org/greenmarket/events/educatedeater2010>

Bread Baking Class was taught by Eli Rogosa and Nathan Lemy at the Brooklyn Kitchen who used heritage grains.

Pancake Breakfast was perhaps the most popular of all events where pancakes were made with unique local grains such as spelt, triticale, and einkorn.

Finally, as part of Grains Week, Greenmarket introduced its *Grains Guide*—a booklet designed as an introduction to the grains that are grown in the Northeast region. Amongst its contents is a grains “vocabulary” page and information on the characteristics of each grain with some basic

guidelines for baking with fresh grains. To date Greenmarket has printed and distributed over 2,000 Grains Guides to consumers and plans to continue to use it as a supplement to its educational platform on local grains.

Event 2: *Miller-Baker Field Day @ Wild Hive Farms*, hosted by Farm to Bakery Project Team, July 11, 2011
Attendees: 27

The project team planned and hosted an educational networking event on July 11, 2011 at Wild Hive Farm in Clinton Corners, New York (see *Event Agenda Appendix 5*). The goal of the event was two-fold: 1) to educate downstate baking companies about New York State's grain industry—including its opportunities and constraints, and 2) to introduce the pilot project participants to each other to develop working relationships and foster business development. There were 27 attendees which were a combination of *Farm to Bakery* pilot project team members, bakers, farmers, and millers.

Don Lewis, owner of Wild Hive Farm gave a tour of the farm and described the operation—highlighting various aspects including production, R&D, and sales. (These are three significant components required in order for milling companies to be sustainable.) The bakers who attended the event were able to see first-hand a local milling operation and talk with millers from around the state about their current production and future plans. This helped to create buy-in and ensure participation amongst the bakers for the pilot project—many of whom are accustomed to wide availability and consistency of their particular types of flour offered by the larger commercial flour industry.

A tasting session was held as part of the event, showcasing goods baked with local flour. The bakers (who had already completed the first round their flour tests) discussed the process and outcomes of working with the local flour. In addition, the millers had an opportunity to talk about their company, products, and capacity. During the lunch period, bakers and millers met one another and in some cases, those that had been matched for the flour trials were able to meet in person for the first time. The potential for future sales transactions is based on the development of these business relationships and, by creating a comfortable setting, companies were able to conduct business.

Overall, the event served as a positive introduction to downstate bakers about the prospects of New York State's grain industry. In addition, it gave the *Farm to Bakery* project partners an opportunity to continue to build confidence and dedication amongst all participants to continue their efforts in the pilot project as well as hear directly from the bakers about their first set of flour trials.

Event 3: *Scaling-Up the Northeast Grains System: Linking Farmers, Millers and Bakers at 25th Annual NOFA-NY Winter Conference, January 20, 2012*
Attendees: 65+
Press: Amy Halloran, a freelance journalist covered the event here
<http://fromscratchclub.com/2012/02/13/community-voices-scaling-up-the-northeast-grains-system/>

The *Farm to Bakery* project team organized a day-long intensive workshop at the NOFA-NY January 2012 winter conference. The workshop was organized by a series of panel discussions that featured the various actors and business relationships along the points of the grains and flour supply chain. Several of the pilot project participants served as panelists (see *Agenda, Appendix 6*). It brought together over 50 farmers, four millers, five bakers, seven wheat breeders and educators, and culinary professionals including an upscale restaurant chef/owner and the pastry chef at Skidmore College.

Panel 1: OREI- Value-Added Grains for Local and Regional Food Systems Project: Farmers were interested in adding grains to their rotations, diversifying their markets, and one farmer is designing an on-farm milling operation. Cornell researchers reported on varietal work to date and upcoming trials of heritage wheat and specialty grains (emmer, einkorn and spelt).

Panel 2 – Farmer-Miller Working Partners: A panel of growers and millers shared what they are learning with different varieties of grains, processing equipment, pricing and marketing.

Panel 3 – Miller-Baker: The third panel brought together millers and bakers who discussed the evolving relationship between the two entities as it relates to sourcing local grains and flours. It highlighted several findings from the pilot project in which bakers described how they are using New York flour and their needs from them – particularly communication about the flour as different batches of wheat are milled.

Panel 4 – Baker Only: The final panel featured four bakers who described what they are doing around incorporating local grains into their products the decisions that have been made in support of these efforts. Samples of breads made with wheat, rye, and spelt were tasted while each baker related what they learned and appreciated about the flours.

Roundtables: The event was capped off by working roundtables on the topics of growing and marketing high quality food grains, sourcing and baking with locally grown grains, and how to start up a processing enterprise.

Eighteen evaluations turned in to NOFA-NY indicated that “a great amount” of new knowledge was gained and that attendees intend to put to use what they learned. Presenters and attendees voiced their appreciation for the opportunity to discuss and learn from growers, millers and bakers all in the same room.

Finale: Over 1,300 attendees attended this 4-day statewide organic food conference. For the Farm-to-Bakery outreach finale, a bread and cheese tasting, hosted by the bakers who trialed flours for the event, was provided for all conference attendees during the cocktail/exhibitor hour before dinner.

Appendix 1



Buy Local. Buy Pride of New York.

Farm to Bakery Flour Trials Information for Participants

Farm to Bakery aims to strengthen the regional supply chain and facilitate the use of NY-grown grains by bakers in New York City.

Participating bakers will test up to three different types of local flour in their products and will be compensated for their time and feedback. This is a great opportunity to try local flour in an existing product or product development.

Flours available for testing

- Emmer
- Rye (organic)
- Hard Wheat (organic)
- Soft Wheat (organic or conventional)
- Spelt (organic)

The project will take place through the 2011-2010 growing season. Bakers and millers will communicate throughout the trials to discuss quantities, pricing, and to ensure bakers are receiving flour that maintains product quality. Results from the pilot program will be used to foster purchaser/supplier relationships and determine what is needed to 'scale-up' efforts to provide local ingredients to a greater number of NYC baking companies.

Participants will receive:

- Customized referrals for locally-grown and milled flours
- Assistance with distribution logistics
- Marketing assistance to highlight use of local ingredients

Participants will be required to:

- Commit to participating in the pilot project
- Provide testing information on flours
- Provide regular feedback on the project
- Participate in final evaluation of the project



Farm to Bakery Contacts

Amy Anderson
NYIRN
(718) 637-8654
aanderson@prattcenter.net

Christina Mitchell Grace
NYS Dept. of Agriculture & Markets
(718) 722-2834
christina.grace@agmkt.state.ny.us

Glenda Neff
Miller Liaison
(315) 255-6958
gneff@juno.com

Appendix 2

Farm to Bakery Pilot Project										
Baker Survey										
<p>Dear New York City Baker- <i>Farm to Bakery</i> is a joint pilot project between the New York Industrial Retention Network and the New York State Department of Agriculture & Markets, funded by the U.S. Department of Agriculture. This project seeks to strengthen the supply chain between New York State farmers/millers and New York City baking companies by encouraging local purchasing of grains and flour products. Please fill out the following form to the best of your ability and a NYIRN representative will be contacting you to follow up.</p>										
<u>Company Name</u>					<u>Address:</u>					
<u>Contact Person</u>					<u>Email:</u>			<u>Phone:</u>		
<p>1. What you're your major products that require flour and/or grains <u>Product 1:</u> <u>Product 2:</u> <u>Product 3:</u></p> <p>2. In the chart below, please indicate the type of flour that you currently use in your products and any other information regarding that flour's standards and characteristics (if it applies).</p>										
Flour Type	Usage				Standards & Characteristics					
	Volume (per unit)	Frequency (Daily, weekly, etc.)	Total Lbs	Cost / Unit	Falling No.	Protein Content	Age (Fresh/Cured)	Grade	Flavor	Color
Wheat-hard										
Wheat-soft										
Corn										
Spelt										
Emmer										
Rye										
Buckwheat										
Oats										
Triticale										
Einkorn										
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>NYIRN New York Industrial Retention Network</p> </div> <div style="text-align: center;">  <p><small>Buy Local. Buy Pride of New York.</small></p> </div> </div>										

Farm to Bakery Pilot Project

Baker Survey

3. Are you currently using locally grown flour?
__ Yes __ No

4. How do you currently purchase your flour (X)
___ NYC-based Independent distributor
___ Jobber
___ Farm
___ Other NYC manufacturer
Other: _____

5. How do you receive your flour?
___ Direct Delivery
___ Pick Up
Other _____

6. Does packaging affect how you order ingredients?
__ Yes __ No

7. If you, then what are your requirements? (List below)

This pilot project has two opportunities to start working with local grains and flour. *Grains Sourcing* will directly connect you with a miller to begin immediately purchasing some or all of your grains/flour needs. *Flour trials* are an opportunity to participate in a series of tests to try various flours in your products and provide by NYIRN and NYSDSAM with feedback. Participating bakers will be compensated for their time.

I am interested in participating in:

Grains Sourcing _____ **Flour Trials** _____

If you are interested in the **Flour Trials**, please check which flours you would be interested in testing:

__ Emmer (pasta makers only) __ Hard Wheat (organic) __ Triticale (organic)
__ Spelt (organic) __ Hard Wheat (conventional) __ Triticale (conventional)
__ Soft Wheat (organic) __ Rye

Please return this survey to Amy Anderson at NYIRN, aanders8@pratt.edu or fax to 718-636-3709. If you can any questions, please call Amy at 718-637-8654.



Buy Local. Buy Proud of New York.

Appendix 3

Farm to Bakery
 Flour Trials
 Feedback Form (1 per test)
 Page 1

I. Baker Identification (Fill In)	
Company name	_____
Test date	_____
Tester name & position	_____
Current flour brand	_____
II. Flour Profile (Fill- In, take from miller packing slip)	
Miller name	_____
Distributor (if any)	_____
Flour type	_____
Flour variety	_____
Protein level	_____
Falling number	_____
III. The Test	
Product made (bread type/ baked)	_____
Amount of flour used in single test	_____
Product yield (e.g. 1 loaf)	_____
Did you adjust the amount of flour for the recipe?	<input type="checkbox"/> Added more <input type="checkbox"/> Same Amount <input type="checkbox"/> Used less
How does the flour compare to the flour brand you currently use for this product?	
Grind	<input type="checkbox"/> finer <input type="checkbox"/> coarser <input type="checkbox"/> same
Flour aroma	<input type="checkbox"/> weaker <input type="checkbox"/> similar <input type="checkbox"/> stronger
IV. Dough profile	
Mixing peak	_____ minutes
Mixing tolerance	_____ minutes
Absorption	_____ %



Farm to Bakery
 Flour Trials
 Feedback Form (1 per test)
 Page 2

Bread only
 When answering the following questions please compare the flour you tested against the brand you would typically use for this product.

Elasticity good tears other _____

Relax time (min/hr) shorter same longer

Proof time (min/hr) shorter same longer

V. Product Profile Please describe the following qualities of your resulting product

Aroma _____

Crust color _____

Crust texture _____

Crumb quality _____

Crumb color _____

Flavor _____

VI. General Reactions to the Flour

What did you like about this flour?

What did you not like about this flour?

Could you substitute the tested flour for your current brand/type as is? yes no

Would you be willing to work with the miller to adjust the flour? yes no

Would you be willing to adjust your recipe? yes no



Appendix 4

Monday, March 14, 2011 10am – 3pm
Farm to Bakery: Growing Food-Grade Grains
Jordan Hall, NYS Agricultural Experiment Station
630 West North St Geneva, New York 14456

10:00 Coffee, muffins

10:15 Introductions

Farm to Bakery: Building Value Chains for Regionally-Grown and Milled Grains
What we want to accomplish today

10:30 Growing food-grade grains – what you need to know

Thor Oechsner, Oechsner Farms, Newfield, NY & NOFA-NY
Klaas & Mary-Howell Martens, Lakeview Organic Grains, Penn Yan, NY
Ron Robbins, Robbins Farm, Sackets Harbor, NY

Factors to consider

- **before you plant:** who's the buyer - contract/agreement and minimum acreage requirements, harvest capacity and timing, dryer capacity, storage, cleaning standards for food-grade mills
- **rotations:** weed control and disease, contamination from previous crops, examples of effective rotations, use in vegetable crop rotations

How to harvest, process and maintain high quality in food grade grains:

harvest timing, combine adjustments, post harvest cleaning and drying,
good storage techniques and equipment, insect control, cleaning equipment

11:45 Markets for hard and soft wheat, rye, emmer, spelt

Klaas & Mary-Howell Martens, Lakeview Organic Grains, Penn Yan, NY
Erick Smith, Cayuga Pure Organics, Brooktondale, NY
Greg Mol and Stefan Senders, Farmer Ground Flour, Trumansburg, NY
Ron Robbins and Kevin Richardson, North Country Farms mill, Watertown, NY
Dave Smith, Log City Milling and Lake Distilling LLC, King Ferry, NY
Fred Keil, Flour City Pasta, Fairport, NY

12:30 Lunch (provided)

1:00 Markets for hard and soft wheat, rye, emmer, spelt – cont'd

2:00 Testing

what, who (farmer or buyer), where & costs

- mycotoxin
- moisture content
- ash content
- protein content
- falling number

2:30 Wheat varieties

Elizabeth Dyck, Organic Growers' Research and Information-Sharing Network (OGRIN)
Julie Dawson and David Benscher, Cornell University CALS wheat breeding
Sharing by growers in the room – their experience with specific varieties
Seed sources, supply, cost

Registration: Glenda Neff gneff@juno.com (315) 255-6958

Appendix 5

Farm to Bakery
Miller – Baker Event
Wild Hive Farm ~ Clinton Corners, NY
July 11, 2011

Agenda

At the Wild Hive Farm Mill, 2645 Salt Point Turnpike, Clinton Corners, NY

10:00 AM: Welcome, Intros and Farm to Bakery Overview

10:15 AM: Mill Tour

- A-Z of milling at Wild Hive
- Farmers' experiences
- Varieties of wheat

At the Wild Hive Farm Bakery & Café, 2411 Salt Point Turnpike, Clinton Corners, NY

11:30 PM: Tasting of Breads and Pastries Made with Local Grains

12:00 PM: Lunch and Networking at Wild Hive Café & Bakery

1:00 PM: Farm to Bakery Trials Results and Baker Discussion

- Findings from the flour trials to date
- General discussion of bakers experiences using local flours

2:15 PM: Farm to Bakery Next Steps

- Matchmaking
- Distribution Components/Wholesale Farmers' Market Distribution Pilot
- Sharing Results

2:45 PM: Bakery Tour of Wood-fired Oven

3:00 PM: End



Appendix 6

Scaling-Up the Northeast Grains System: Linking Farmers, Millers and Bakers Full Day Intensive Agenda Friday, January 20, 9am-5pm

9am Arrival / Introduction

9:15-10:30 **Panel 1: OREI- Value-Added Grains for Local and Regional Food Systems Project**
Elizabeth Dyck (moderator)

This panel will feature members of the OREI team who will introduce their new project which aims to identify varieties of heritage wheat and specialty grain crops (emmer, einkorn, and spelt) adapted to organic management and to optimize their value by developing best management recommendations and investigating processing and marketing options. The team will also summarize the regional experimental varietal work to date.

Panelists: David Benscher, Cornell Dept. of Plant Breeding & Genetics; Julie Dawson, Cornell Dept. of Plant Breeding & Genetics; Michael Davis, Cornell Willsboro Research; Elizabeth Dyck, OGRIN; Thor Oechsner, Oechsner Farms; Joel Steigman, Small Valley Milling

10:35-10:50 Break

10:55-11:05 **Introduction to Farm to Bakery pilot project** *Glenda Neff*

11:05-12:20 **Panel 2 – Farmer-Miller Working Partners** *Glenda Neff (moderator)*

A panel of growers and millers will share their experiences in relationship-building and learning together how to produce quality grains for flour and grain products (whole grains, polenta, farro, freekah) for bakeries, restaurants and retail stores. They will provide insight into the decision-making process related to choosing the varieties they grow, quality testing, issues related to additional cleaning and de-hulling, and how quality influences pricing.

Panelists: Don Lewis, Wild Hive Farm Community Grain Project; Klaas Martens, Lakeview Organic Grain; Greg Mol, Farmer Ground Flour; Thor Oechsner, Oechsner Farms; and Sam Sherman, Champlain Valley Milling

12:30-1:30 Lunch

1:45-2:55 **Panel 3 – Miller-Baker** *June Russell (moderator)*

This panel discussion will explore the evolving relationship between New York millers and bakers in light of the revitalization of the state's grain industry and the increasing demand for products made with locally grown ingredients. Millers and bakers from throughout New York State will discuss topics including product supply, affordability, performance, and business development opportunities related to local sourcing. This is a great opportunity for audience members to learn more about the burgeoning regional supply chain of seed to consumer product.

Panelists: Keith Cohen, Orwasher's Bakery; Peter Endriss, Runner and Stone Bakery & Restaurant; Matt Funciello, Rock Hill Bakehouse; Sharon Leader, Bread Alone; Don Lewis, Wild Hive Farm Community Grain Project; Greg Mol, Farmer Ground Flour; and Sam Sherman, Champlain Valley Milling

2:55-3:10 Break

3:15-4 **Panel 4 – Baker Only** *June Russell (moderator)*

This panel will feature bakers representing various scales of the industry from around New York State, discussing the aspects of incorporating locally grown and milled grains into their product lines. Bakers will highlight their own educational experiences in learning the specifics about grains and flour as ingredients, testing the performance of these ingredients, working with small-medium scale millers, and the overall business decisions related to incorporating local and organic grains and flours into their baked goods.

Panelists: Keith Cohen, Orwasher's Bakery; Peter Endriss, Runner and Stone Bakery & Restaurant; Matt Funciello, Rock Hill Bakehouse; and Sharon Leader, Bread Alone

4-5 **Roundtables** *Facilitated by panel moderators*

Participants will break into small groups for intensive focus on one of the following topics: growing and marketing high-quality food grains, sourcing and baking with locally grown grains, and starting up a processing enterprise. Emphasis will be on interchange of practical information through discussion, hands-on demonstrations (e.g., comparison of locally grown vs. commodity flour and baked products), and handouts, such as fact sheets on varieties and food-grade processing regulations and lists for sourcing product and equipment.



Cornell University