

Impact Assessment of Vermont Farm2School Program

Prepared for the Vermont FEED Partnership
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Introduction

VT FEED works with schools and communities to raise awareness about healthy food, the role of Vermont farms and farmers, and good nutrition. They act as a catalyst for rebuilding healthy food systems, and cultivating links between classrooms, cafeterias, local farms, and communities. VT FEED is one expression of a growing national movement to help schools and communities address children's health and nutrition concerns. VT FEED's own Farm2School Initiative sponsors efforts to increase the number of local farm and school educational partnerships. It also advocates for an overall increase in Vermont-grown products in the school food program. These efforts stem from a belief that the increased freshness, improved taste, and local-connection these foods offer help students make healthier food choices at school and at home, improve their academic performance, and help Vermont meet its goals for healthier citizens. They also see these efforts supporting local agriculture, and helping young people build lifelong connections to their own communities and to Vermont's agricultural heritage and working landscape.

The Vermont FEED partnership engaged John Ryan Principal of Development Cycles in Amherst, MA to analyze the likely impacts of efforts to increase the level of Vermont farm involvement in the school food system.

The analysis begins by asking a number of questions:

- How much Vermont farm produce and dairy product does the Vermont school food program currently purchase? How many schools currently engage in local farm-school partnerships?
- What key challenges stand in the way of increasing Vermont food purchases and local Farm2School Partnerships?
- What actions would increase the likelihood of overcoming the challenges to reaching increased levels of activity?
- What represents a realistic increase in the level of Vermont farm purchases over the next five years? What represents a realistic increase in the number of local Farm2School partnerships over the next several years?
- What impacts would those actions have on key participants in the school food system, including farmers, school food workers, food distributors, local and state governments, parents and children?

In attempting to answer these questions, the consultant utilized a wide array of sources including interviews with state and federal officials overseeing aspects of the school food program, school food administrators, wholesale food distributors, farmers, and food service management companies. The consultant also drew upon information provided by the Vermont Department of Education, the Vermont Department of Children & Families, the 2002 U.S. Census of Agriculture and Census of Business, and an extensive search of Farm2School initiatives occurring elsewhere in the United States. Appendix A provides a list of the individuals interviewed.

Appendix B provides a brief overview of the Vermont School Food System. It was prepared by the consultant to outline the current provision of school meals to Vermont children and to describe the key Farm2School initiatives that represent the current focus of the Vermont FEED partnership. Appendix C summarizes research on Farm2School Programs in other states throughout the U.S. Appendix D summarizes several school food health studies.

I. Current Conditions

The consultant interviewed a number of school food professionals to obtain information and estimates on current school food purchases in Vermont. In addition, the consultant analyzed wholesale food orders for the 2004-2005 school year made by the Abbey Group (one of the three large contract service providers who manage roughly one-third of the Vermont school food programs) and the VT Food Service Buying Group (a buying group made up of 82 individual school food administrators)*. The consultant also analyzed USDA Commodity purchases for all schools in Vermont and DoD Fresh Program distributions for the 2004-2005 year. Finally, the consultant reviewed the U.S. Census of Agriculture and Census of Business for 2002 in order to obtain information on agricultural sales generally in Vermont.

** The Vermont School Food Buying Group and Abbey Foods, Inc. together provide school food for nearly half of the school children in Vermont. For a fuller explanation of how the Vermont School food system works, see Appendix B: How Do We Feed Vermont’s School Children? An Insider’s Guide to Vermont School Meals*

Distribution of Vermont School Food Authority Food Purchases

Currently, the cost of the food that goes into the Vermont school food program averages just about \$1.00 per meal served. This includes all direct and wholesale purchases as well as commodity foods. Based on the interviews and data collected, the consultant estimates that fifteen cents of that dollar purchases fruits and vegetables (including fruit juices), 24 cents buys fresh milk, 36 cents goes into all other protein sources except milk, and 25 cents purchases all of the other mostly carbohydrate-based foods on that average plate. Roughly half of the fruit and vegetable purchases (by dollar amount) are for fresh produce. Nearly a quarter of the protein purchases are for cheese and yogurt.

Given the roughly \$14 million spent on school food statewide, that corresponds to total purchases of:

- Fruits & Vegetables\$2.1 million
 - *Fresh Fruits & Vegetables..... \$1.05 million*
- Liquid Milk.....\$3.4 million
- Protein.....\$5.0 million
 - *Cheese & Yogurt..... \$1.2 million*
- Other Foods\$3.5 million

Estimate of Vermont Product Sold in Schools

Burlington Foodservice Co. (BFC) delivers well over half of the food to School Food Authorities in Vermont. BFC along with Black River Produce Co., and Squash Valley Produce Co. supply most of the fresh produce to schools in Vermont. Based on interviews with these three suppliers and sales analysis, the consultant estimates that the overall sale of Vermont products by all schools represents at least \$3 million in milk sales, but no more than \$105,000 in fresh fruits and vegetables, \$120,000- \$144,000 in cheese and yogurt, and only negligible sales of other products.

Product Type	Total Purchases	From Vermont	Vermont Sales
Fresh Fruits	\$400,000	10%	\$40,000
Fresh Vegetables	\$650,000	7-10%	\$50,000-\$65,000
Liquid Milk	\$3.4 million	90-100% ¹	\$3.0- 3.4 million
Cheese & Yogurt	\$1.2 million	10%-12%	\$120,000-\$144,000

¹/ Hood Milk, the major New England milk supplier, dominates milk sales to School Food Authorities in Vermont. According to each of the food professionals contacted, Hood claims that all their milk sold in Vermont comes from Vermont. Respondents were not aware of any independent verification of this claim. Based on container size a significant share of milk is actually bottled in MA.

Apples and fresh apple cider account for roughly 40 percent or about \$160,000 of all fresh fruit purchases made by Vermont schools. At most, a quarter of these purchases come from Vermont farms. Virtually all of the \$40,000 spent for Vermont fresh fruit goes to purchase apples. Roughly half of these Vermont apples sell through wholesale distributors, with the other half coming from direct farm purchases. In the 2004-2005 program year, the DoD Fresh Program distributed \$37,862 in apples to Vermont. Only about \$1,100 of these apples came from Vermont farms.

The VT fresh vegetables purchased by schools include relatively small amounts of several type of produce: lettuce, tomatoes, carrots, cucumbers, peppers, onions, broccoli, potatoes, squash, cabbage, and herbs. Roughly \$32,500 of these products reach the schools through wholesalers. Direct purchases of local vegetables range from \$17,500 to \$32,500/ year. The Burlington School System alone purchased \$5,200 in fresh vegetables in 2004-05 and received another 300 lbs of donated vegetables and herbs from local farms. Several other schools active in the VT Feed program report local vegetable purchases of between \$500 and \$3,000/ year. The DoD Fresh Program distributed \$11,523 in carrots, lettuce, onions, and potatoes in 2004-05. None of these vegetables came from Vermont farms.

Liquid milk dominates Vermont product sales and represents a significant share of all school food purchases. It appears that most of this milk originates on Vermont farms. Cheese and yogurt sales represent a somewhat different story. Even though Vermont is a major producer of cheese and yogurt, no more than 10-12 percent of school cheese sales originate with Vermont producers. Over half of the roughly \$1.2 million worth of cheese used annually in schools comes through the USDA Commodity Program. Only about \$50,000 of the \$628,000 in commodity cheese distributed to Vermont schools in 2004-05 came from Vermont. Virtually all non-commodity cheese and yogurt sales come through food wholesalers. Most of the Vermont-based dairy sales purchased through wholesalers come from Cabot Creamery Cooperative products.

Fresh Produce Sales, By Type

Figure I.1 represents the estimated Vermont school purchases of fresh fruits and vegetables grown in Vermont and consumed in meaningful quantities:

Fig. I.1 – Fresh Fruit and Vegetables Sales

Vermont School Food Authorities, 2004-05, Est

FRESH FRUITS.	% of All Fruit Purchased	Annual Sales	Vermont Sales	Vermont Share
Apples	40%	\$160,000	\$40,000	25%
Melons	7%	\$28,000	\$-	nominal
Pears	5%	\$20,000	\$-	nominal
Berries	<1%	<\$1,000	\$-	nominal
Non-Local Fruits	48%	\$192,000	\$-	0%
TOTAL	100%	\$400,000	\$40,000	10%

FRESH VEGETABLES	% of All Vegetables Purchased	Annual Sales	Vermont Sales	Vermont Share
Lettuce	35%	\$227,500	\$15,000- \$20,000	6-9%
Tomatoes	15%	\$97,500	\$5,000- \$10,000	5-10%
Carrots	12%	\$78,000	\$5,000- \$10,000	6-12%
Cucumbers	7%	\$45,500	\$1,000- \$2,500	nominal
Peppers	5%	\$32,500	\$1,000- \$2,500	<5%
Broccoli	5%	\$32,500	<\$1,000	nominal
Potatoes	5%	\$32,500	<\$1,000	nominal
All Other	16%	\$104,000	\$5,000- \$15,000	5-15%
TOTAL	100%	\$650,000	\$32,500-\$60,000	5-10%

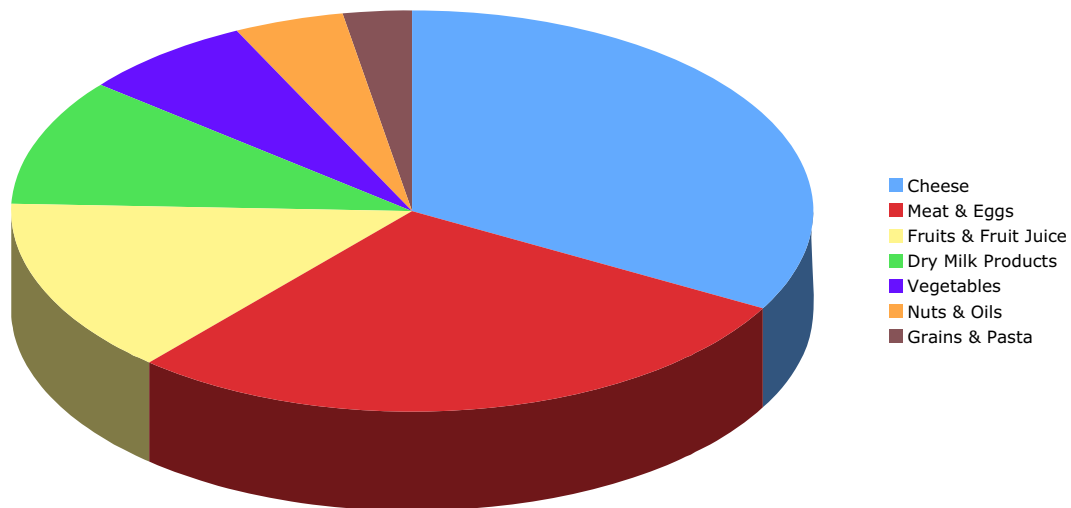
A review of fresh produce purchases suggests that Vermont farmers focus on only a relatively small range of the fruits and vegetables currently used in significant quantity in the school food program. Among fruits, apples are really the only significantly purchased product. Vermont farms provide as much as \$40,000 or 25 percent of that crop currently. With focused efforts to include and market Vermont apples in the DoD Fresh Program, and with a concerted effort to offer apple slices (alone or combined with cheese or other ingredients) it may be possible to increase both the amount of apples purchased and the market share of Vermont apples used. It seems likely that Vermont school food programs could double the amount of Vermont apples purchased over the next three to five years.

Vermont produce represents a small share of several fresh vegetables purchased in reasonably large amounts by school food systems. The four most popular fresh vegetables – lettuce, tomatoes, carrots, and cucumbers -- account for just over two-thirds of fresh vegetable sales. Several other locally grown vegetables compete effectively with non-local products, but are not popular in current school food purchases. Onions and fresh herbs, winter and summer squashes, red and green cabbage, and fresh green beans account for less than ten percent of fresh vegetable purchases.

USDA Commodity and DoD Fresh Sales

According to data provided by the State Commodities Office in VT Department of Children & Families for the 2004-05 program year, the Commodities and DoD Fresh Program combined to provide nearly \$1.9 million in food in the following fashion:

VT Entitlement Foods, 2005 Program Year



Cheese commodities accounted for a third of total distributions, followed by meat and eggs (28%), fruits and fruit juices (14%), dry milk products (10%)*, and vegetables (7%). Of the roughly \$400,000 in fruits/ fruit juice and vegetables distributed through the commodities and DoD Fresh Programs, only about 20 percent, or \$80,000, represents fresh produce.

The \$628,000 in cheese commodities represents over half of the entire cheese product used in the Vermont School Food Program. According to the state's Commodity Foods administrator, only about \$50,000 in cheese commodities comes from Vermont producers. This single cheese shipment and 75 cases of apples represents all Vermont product distributed through the commodity and DoD Fresh program in the last program year.

* The USDA Commodity Program does not distribute liquid milk.

School Food as a Share of Vermont Product Sales

According to the 2002 Census of Agriculture, Vermont farmers sell a total of \$19.4 million in local produce (fruits, berries, vegetables, and nuts), and \$342.4 million in milk and other dairy products. In the same year, Vermont manufacturers produced and shipped \$428.8 million in cheese and \$280.8 million in milk and other dairy products. Vermont school foods sales represent only a tiny share of the business in these Vermont products:

Product Type	Total Vermont Sales (\$millions)	Total School Sales	School Sales as % of Vermont Sales
Produce	\$19.4	\$100,000+/-	0.5%
Cheese & Other Dairy	\$428.8+	\$150,000	0.03%
Milk	\$280.8	\$3.0- \$3.4 million	1.2%

According to the 2002 Census of Agriculture, 1,163 Vermont farms sell about \$9.6 million in products directly to individuals for human consumption. The consultant estimates that statewide sale of produce directly from farms to schools totals no more than \$32,500 per year. This represents 0.3 percent of VT farms' direct sales.

Farm2School Partnerships

The VT FEED Program has developed individual Farm2School programs in more than 40 SFAs since 1997, most of which remain active currently. These SFAs educate about 20 percent of the state's K-12 students. The VT FEED schools are involved in a wide range of activities, including the creation of school gardens, farm-based field trips, student taste tests, community-led food/ nutrition committees, nutrition and agriculture-education, and purchasing local foods for the cafeteria. An unknown number of additional SFAs have developed programs of their own.

Summary

Vermont produce currently accounts for no more than ten percent of the roughly \$1,050,000 in fresh fruit and vegetable purchases made by the Vermont School Food System. This represents at most \$105,000 in Vermont fresh produce annually. Vermont products represent only about 12 percent of cheese and yogurt sold to Vermont schools, for another roughly \$144,000 annually. Taken together, these Vermont products represent less than two percent of the average food cost of a school meal in Vermont. Only liquid milk represents a significant purchase of Vermont product. It seems likely that nearly all of the roughly \$3.4 million spent on liquid milk for Vermont school meals comes from Vermont cows. A quarter of the total food cost of a Vermont school meal goes to buy milk.

Currently, the School Food system represents a very small share of the market for Vermont products. School food purchases represent less than 0.5 percent of the total sales of fresh fruits and vegetables grown by Vermont farmers. Vermont school's cheese and other dairy purchases account for just 0.03 percent of overall VT sales of these products. Even the state's significant purchase of milk and dairy products other than cheese accounts for only about 1.2 percent of overall sales for these Vermont-made products. While these overall numbers are low, school food involvement can make a significant impact on the practices and performance of individual farms.

II. Key Challenges

The following identifies a number of the key challenges to increasing Vermont food purchases and local Farm2School Partnerships, based on interviews with school food administrators, contract service providers, food distributors, and farmers.

While the following represents specific areas of challenge, it does so within the context of a larger societal mindset, mirrored in the schools, that places relatively little monetary value on good nutrition. The food cost of Vermont school meals is only about \$1.00 per meal. Food workers are among the lowest paid workers in the labor force. Many school systems are expected to pay all of their own expenses based on meal charges and federal reimbursements that have increased at a lower rate than inflation. While those interviewed from school food programs are often quite proud of their accomplishments and uniform in believing that progress is being made, it clearly remains a system under stress. Many school food systems simply experience a deficit in the funding, knowledge, commitment, and appreciation needed to address child nutrition more effectively. For them, the added responsibility and potential cost of increasing local food purchases taxes an already overstressed system. Even some of the most active programs express concern for the ability to sustain the interest and funding to maintain and build on the improvements made. Within a system that has significant constraints on time and money, differences naturally arise over priorities. School food administrators are forced to ask, “if we had even five cents more to spend on each meal (which we don’t), would that money be best spent on local or Vermont produce, or on fresh produce wherever its origin, or just on more fruits and vegetables, fresh or not?” It is a long-term process to change the larger value to see nutrition as a central component of life long education and health and to understand that local does not always mean more expensive. The following represent some of the key challenges to taking the initial steps toward increasing Vermont farm involvement in that process.

Commitment

For nearly all of those interviewed, the biggest challenge to continued nutritional improvements in the school food program is commitment. In most instances, this commitment starts with the school food administrators and staff, and expands to include principals, teachers, school systems, parents, community, farmers, and government officials. Increasing that level of commitment may be seen as a challenge of marketing. Generally, study respondents sense that the school and community populations accept the idea that children should be eating more nutritiously and that students who eat better do better in school. Still it too often remains “one more thing,” on already full plates. Often the first and biggest challenge is make Farm2 School initiatives important enough and achievable enough to get folks started. Respondents talk about the need to provide achievable first steps, support incremental improvements, foster an atmosphere of appreciation, and communicate outcomes and impacts effectively.

Product Availability

Schools need a reliable supply of food delivered efficiently at a competitive price throughout the year. There is little doubt that most school food administrators would order Vermont-based food if all other variables were equal, including availability, cost, ease of delivery, standardized quality, and ease of use. Some schools are already willing to pay a little more for some local products, touting its greater usability. Others are willing to arrange for pick ups, or accept greater variations of standard quality, or spend more time cleaning produce, or use less popular products. Still, if there are to be substantial changes in the total amount of Vermont product offered in school meals, each of these variables needs to be minimized.

Of the key Vermont-based products, milk and dairy are readily available throughout the year. Vermont apples, carrots and potatoes are available for several months. Other Vermont produce like lettuce, tomatoes, potatoes, and herbs are competitive with national produce when they are in harvest, but are only available for a relatively small part of the school year. Still other Vermont-based produce with an extended availability (items like onions, winter squash, cabbage, and other root vegetables), represent only a small share of school's overall produce purchases.

Vermont's relatively short growing season places emphasis on provided food for summer programs, utilizing fall harvest foods, and expanding the use of produce with greater storage capacity. Introducing foods and recipes that use seasonal foods and exploring methods to extend produce with light processing will allow schools to enjoy Vermont produce for more of the year. Making sure that School Food Administrators are aware of the availability of Vermont-based products in advance for menu planning is also a challenge that needs addressing. Vermont schools will always need to shift fresh produce purchases from local to warmer climate providers, still more can be done to support efforts to purchase local produce when it makes sense.

Price Comparability

Discussions with school food administrators suggest that the issue of price comparability for local products must be framed by the serious financial constraints of the entire school food program. The entire program runs on food costs of only \$1.00 per meal. Most programs are expected to cover all of their costs through sales revenue and federal reimbursements. Few believe there is community support or capacity to increase the cost of meals to purchase better quality ingredients. Moreover, under operating federal requirements, schools are required to contract with suppliers who offer the lowest cost*. It is within this context that the perception that local products cost more is accentuated.

Vermont produce suppliers currently work with between 50 and 75 in-state farms that provide wholesale quantities of apples, vegetables and herbs. They report that the prices these farmers receive for their products are competitive with comparable product available from the regional produce markets in Boston. Especially during the periods of

* Contracts may include a preference for products harvested within 24 hours of delivery.

local harvest, Vermont produce is price competitive. For Vermont farmers already in the wholesale market, price comparability is not really an issue in season. Greater differences and variations in price come into play when comparing wholesale prices with produce available to school directly from small, local farms. These farms typically sell most of their product through farm stands or local outlets at higher retail prices. Price and product comparability with these smaller farms is much more varied, as well as more negotiable. Under some conditions (strong harvests, “seconds,”) these farmers may offer produce more cheaply than wholesale, but on the whole retail-based farm produce is more costly than what is available (local or otherwise) through wholesale distributors. According to food service administrators, convenience and reliability and consistency of supply is more important than price when choosing whether to work with small, local producers.

Distribution Network

The state’s key wholesale produce distributors to SFAs all offer Vermont produce and all claim to actively promote Vermont farms. They see the key challenges to increasing the share of local produce to include increasing minimum pick up and delivery quantities; improving consistency of cleaning, packing, handling and storage care prior to pick ups; educating SFAs about the greater variability of local produce compared to national markets; and improving SFA awareness of availability in ways to use local produce. The produce managers for Burlington Food Service Co., Black River Produce and Squash Valley Produce all suggested a willingness to convene meetings between school food administrators and established wholesale-level farmers to work out methods to increase the share of local produce purchased through normal distribution channels.

Food Preparation Time, Equipment and Skill

Food service training, proper equipment, and streamlining the process of buying local produce are essential given the time and cost constraints local food service managers already face. Many food service workers need assistance developing recipes and processing skills that better utilize local products efficiently. It will also be important to explore methods to lightly process some products to make them easier to incorporate into existing school meal programs.

Student Preferences

A concern raised in a number of study interviews was the unwillingness of students to embrace the healthier fresh foods when offered them. Studies both in Vermont and elsewhere in the U.S. show that student’s active participation in food growing, harvesting and preparation breaks down much of the resistance to trying new foods. Getting food and farmers into the classroom connects students to the source of their food and has the most direct impact on helping them make healthier food choices. Taste tests, classroom garden plots and involvement in menu development all make good food a tangible part of the student’s curriculum.

III. Recommendations

The following summarizes a series of specific actions to increase Vermont-based product sales to School Food Programs and to increase the number and depth of local farm-school partnerships in Vermont.

Increasing Vermont-based Product Sales to School Food Programs

Since Vermont schools now buy only about \$100,000 worth of local fresh produce, and less than \$150,000 in Vermont-made cheese and yogurt, they represent only a tiny share of local business in these products. At this point, the realistic potential for increasing these products suggests at most a two- to three-fold increase in sales over the next several years. Even at \$300,000/ year in Vermont produce sales and \$450,000/ year in Vermont cheese and yogurt sales, these realistic outcomes do not offer sufficient economic incentive for any but small and efficient measures to increase business. Initial efforts to increase local produce should focus on the ways wholesale distributors and commodity providers receive, market and deliver Vermont product for schools from farm suppliers who are already in the wholesale business. Small farmers are not to be left out of the initiative; rather, they should be encouraged to participate in direct Farm2School partnerships (see “Increasing Farm to School Partnerships” p. 15). For these local farmers, the impact of participation in the F2S program can be significant in terms of both their practices and sales.

COMMODITY SALES

Recommended Action #1: Increase State Commodity Office efforts to highlight the availability of Vermont-based apples through the DoD Fresh Program to all School Food Authorities and through contract service companies, well in advance of their actual availability. **Goal:** \$30,000/ year in apples delivered through the DoD Fresh Program within two years. **Rationale:** the State Commodity Office included Vermont apples in 2005. The availability and receptivity of schools to purchase Vermont apples is well established. The VT Agency of Agriculture, Food & Markets and the Vermont apple trade groups are focused on this market opportunity.

Recommended Action #2: Increase State Commodity Office efforts to include and similarly highlight Vermont-grown carrots, potatoes, winter squash, and onions in DoD Fresh offerings. **Goal:** \$10,000/ year in non-apple produce delivered through the DoD Fresh program within two years. **Rationale:** these represent the Vermont-grown products with long storage capacity, regular availability, and significant demand from SFAs. These fresh produce items are offered in many other states’ DoD Fresh offerings.

Recommended Action #3: Increase State Commodity Office efforts to include and highlight Vermont-made cheese in USDA Commodity offerings. **Goal:** \$100,000/ year in

additional Vermont-made cheese delivered through the USDA Commodity Program within two years. **Rationale:** having demonstrated the capacity to utilize one shipment of Vermont-made cheese for the USDA Commodity Program, and given the large quantity of commodity cheese distributed, the extra effort to focus on Vermont made cheese may yield significant sales.

Recommended Action #4: Encourage Vermont's federal legislative delegation to lobby for a doubling of Vermont's DoD Fresh allocation over the next two years. (Goal: \$100,000 in additional DoD Fresh allocation within two years. **Rationale:** no other single action would have as great a direct impact on Vermont fresh farm producers. At least nine other states have pilot programs that focus on utilizing in-state produce within the DoD Fresh Program.

NON-COMMODITY SALES THROUGH EXISTING DISTRIBUTION NETWORK

Recommended Action #5: VT FEED and/or VT Agency of Agriculture, Food & Markets (VT AAFM) convene and facilitate working meetings between the three largest produce distributors, key produce farmers, and key school food administrators to establish specific protocols that address identification of local products, pick up, delivery, price, standardization, and returns policies needed to increase Vermont produce sales to school food programs. Distribute these protocols for increasing the purchase of Vermont-based produce through wholesale channels to participating farms and to all School Food Authorities. VT AAFM should develop and distribute to distributors and SFAs a list of Vermont farmers interested in using these protocols to supply school food programs. **Goal:** \$200,000/ year in additional Vermont-grown produce sales through normal distribution channels within three years. **Rationale:** the key produce distributors have identified these protocols as critical to utilizing existing distribution channels effectively and have offered to participate in such efforts. A relative small set of producers and SFAs should be able to address the issues efficiently. Utilization of the existing distribution network addresses a primary concern of many SFA administrators that they need to purchase local foods in an efficient and standardization manner.

Recommended Action #6: VT FEED or VT AAFM encourage efforts by each produce wholesaler to provide produce order forms that highlight the availability of Vermont-grown produce and let school food suppliers know about upcoming availability in advance. Place a particular focus on using local foods in August through November and during the summer months for those SFAs that provide summer-program meals. **Goal:** (included in #5 above) \$200,000/ year in additional Vermont-grown produce sales through normal distribution channels within three years. **Rationale:** all SFAs purchase from distributor-provided order forms. This standard existing channel for informing purchasers of produce availability provides an ideal opportunity to highlight and give advance notice of Vermont produce.

Recommended Action #7: VT FEED VT DoE or VT AAFM provide School Food Authorities, through produce distributors (or other means), with processing tips and recipes especially those that utilize less popular Vermont-grown products available through those distributors. **Goal:** \$20,000/ year in additional Vermont-grown sales of

winter squash, cabbage, and root vegetables, etc. within three years. **Rationale:** a number of Vermont-grown products with long seasons, and strong storage characteristics remain underutilized by SFAs. Again, using the standard information channels provides the means to give meal planners ideas for utilizing these local products based on successful introductions in other schools.

Recommended Action #8: VT FEED or VT AAFM develop a marketing campaign and common F2S logo for SFAs that highlights the use of local products in the lunch-line to students and through school mailings to parents. **Goal:** development of statewide marketing effort within two years. **Rationale:** the experience of other states indicates that there is a carry-over marketing benefit to local farms when they are identified and highlighted within the school lunch-line. Contact with parents through existing school mailings provides an efficient method to begin educating that crucial group of stakeholders about the importance of supporting school nutritional efforts.

SETTING OTHER LONG TERM ACTIONS IN MOTION

Recommended Action #9: Authorize the VT AAFM, Child Nutrition Programs or other entity to advocate for the development of certain products and provide market support for VT AAFM efforts to expand Vermont capacity to provide light processing and value added products that better utilize Vermont-based agriculture. **Goal:** develop at least three new “lightly processed” or value-added products using Vermont-based products and make them available to the school food system within three years. **Rationale:** several of the most promising avenues for increasing Vermont-based product sales in the school food program require capital investments greater than can be justified based on school food sales alone. These include efforts to provide light processing (e.g. peeled baby carrots or shredded cabbage), value added products, (e.g. soups or and baked goods) and new products (e.g. smaller size yogurt servings). These initiatives depend upon there being other larger marketing channels such as restaurant, retail or other institutional sales for the new products created.

Recommended Action #10: Authorize VT FEED or the VT Child Nutrition Programs to collect, develop, and distribute “best practice” information to School Food Authorities at a detailed practical level able to be adopted simply by the local authorities (e.g. How to process, store, and use grated zucchini “seconds”). **Goal:** develop and distribute SFA Manual with recipes, local purchasing and contract information in the next year. **Rationale:** individual schools are already performing a wide range of Farm2School activities in the meal program and in the classroom. Sharing these successful practices in a friendly and personal manner can help break down resistance to change among school food workers.

Recommended Action #11: Authorize the VT Dept. of Health and Dept. of Education to work with VT FEED to establish baseline conditions and survey methodologies to track the change in nutritional, health and educational measures based on changes in school food offerings. **Goal:** have baseline conditions and survey methodologies to track

changes in place statewide within two years. **Rationale:** any hope of increasing long-term state and local support for Farm2School initiatives needs outcomes-based assessment tools.

Increasing Local Farm2School Partnerships

The first set of recommendations (#1-11) attempts to increase the total amount of Vermont-grown foods served in the school food program through existing distribution channels. These recommendations are based on a premise that by reducing some of the obstacles to making local purchases, we can tap the willingness of many to support the “buy local” concept when it is relatively easy to do so. These efforts, though necessary, will not by themselves change existing values and attitudes about key nutritional issues. Neither will they change purchasing patterns enough to significantly change how farmers and distributors relate to the school food system. A second group of recommendations focuses on the potential for more and deeper farm-school partnerships to prepare the soil for more long-lasting changes of values. These partnerships create a personal connection between farmer, school food worker, student, and teacher. They engage children actively in relating to the food they eat. These personal connections are needed to effect deeper changes of values that allow nutrition to compete effectively for classroom time and financial support within the educational setting.

The following lists several key recommendations to increase these personal connections.

Recommended Action #12: Designate an entity with statewide purview to facilitate outreach, training, and evaluation for the remaining recommendations. It does little to identify key actions to increase Farm2School partnerships without also identifying and funding some entity to perform those recommended actions. **Goal:** designation and funding support for a lead entity to oversee Farm2School Initiatives within one year. **Rationale:** whether these actions extend the responsibility of VT FEED or the Departments of Education, Health or Agriculture, or some other entity, someone needs to accept primary responsibility to see that these activities occur.

Recommended Action #13: Authorize the designated entity to match interested School Food Authorities with farms and other local food suppliers in their immediate area, and facilitate initial discussions between the parties to explore partnership options. **Goal:** at least 50 new Farm2School initiatives within three years. **Rationale:** SFA administrators identified the task of finding local farm partners and establishing meaningful programs with them to be one of the more time-consuming and difficult aspects of their Farm2School efforts. Farm groups suggest that many individual farmers would like to participate in local programs but don’t know how. A centralized matching and facilitation function can help make it easier for SFAs to take a “first step” toward focusing on Farm2School programs.

Recommended Action #14: Authorize the designated entity to develop and offer to local SFAs a menu of “Ways to Get Started” in curriculum-based Farm2School initiatives. **Goal:** at least 50 new Farm2School initiatives within three years. **Rationale:** again, the

opportunity exists to learn from successful programs options for taking successful first steps to introduce local produce and greater nutritional awareness into the school food and classroom setting. In the context of an often-overworked school food system help with these planning efforts makes change easier.

Recommended Action #15: Authorize the designated entity to develop a statewide award program to recognize, celebrate and publicize schools and individuals who are making remarkable progress toward providing healthier school food. This effort is aimed at raising the status and importance of the school nutrition program and should mirror other statewide educational awards. **Goal:** an active recognition program within two years. **Rationale:** school food workers consistently reported that recognition of their efforts by children, parents, faculty, and others represent a source of great satisfaction and motivation. Moreover, public support often follows public recognition. By raising the status of school food accomplishments, the reputation of school systems can be effectively linked to these efforts in ways that build pride, “buy in” and ongoing financial support.

Recommended Action #16: Authorize the designated entity to develop a strategy for contributing to local school food administrator hiring decisions. This might include relationships with the New England Culinary Institute and other food service training programs to develop interest in school food service; it could include developing suggested background experience and interview questions for search committees; it could track and distribute wage and salary information to school boards and administrators. **Goal:** an active network to support school food hiring within two years. **Rationale:** several study respondents noted that a crucial opportunity for changing a school’s nutritional perspective comes with the retirement of an entrenched “old school” food administrator. A network focused on identifying openings and promoting health conscious applicants can make it much easier for school systems to make wise hiring decisions.

Recommended Action #17: Authorize the designated entity to utilize existing networks such as the School Board, Principals or Superintendents Associations to advocate for and train local school food committees consisting of school food workers, teachers, parents, students, and farmers to provide direction and advocacy for increased nutritional awareness and increased student participation in the school food program. **Goal:** 50 additional local school food committees formed within three years. **Rationale:** local school food committees already exist in many communities and can serve a critical role in maintaining and building public support for healthy eating initiatives. These committees are especially important in SFAs with food service contracts to outside vendors. Several respondents expressed concern that the act of hiring an outside vendor to manage a school’s food program too often increases the separation between education and healthy eating.

Legislative Funding Priorities

The consultant estimates that food costs for Vermont school meals currently average about \$1.00/ meal, with fresh fruits and vegetables accounting for only about seven cents of that cost, and Vermont-grown produce amounting to less than a penny of each meal's cost. Moreover, considerable differences exist between wealthier and poorer school systems in the cost of school meals, as well as in the amount spent on fresh, local produce. There are clearly a number of important opportunities for the Vermont legislature to provide financial equity and support to stimulate both nutritional and local purchase activities. The following lists several such priorities:

Recommended Action # 18: Provide legislative funding (through the VT Department of Education or VT AAFM) specifically earmarked for fresh local produce purchases by SFAs. These grants could go to all schools or only to poorer schools with higher percentages of students eligible for free or reduced lunches. Optimally, the funding would coincide with a curriculum tie-in. To fund a doubling of local produce would cost only about \$100,000/ year statewide, while a doubling of fresh produce sales regardless of origin would cost about \$1 million/ year. **Goal:** funding for at least \$100,000/ year in additional Vermont-grown produce sales over the next three years. **Rationale:** direct state funding for fresh local produce purchases would have the most immediate and direct impact in increasing local sales. It would allow many SFAs to develop support for local fresh produce with off-budget funds before seeking greater local financial commitment to the school meal program.

Recommended Action #19: Provide some level of legislative funding through the VT Department of Education for a series of regional trainings for food service workers, principals, teachers, and farmers. The focus of the food service and teacher training should include exposure to workable “first step” activities already performed by peers around the state. Resource materials, such as handbooks, a web site of activities and a local purchasing manual, represent an important aspect of these trainings. **Goal:** at least \$150,000/ year in added training grants serving at least 1,500 school food personnel, teachers, principals, and farm producers over three years. **Rationale:** study respondents and experience in other states suggests that training food service workers to integrate healthy eating techniques into their meal planning and preparation, represents a key skill building resource. The state already has a training program aimed at school food service workers. For which this would be an expansion of those served. Training opportunities also exist for other key participants including teachers looking for help developing direct tie-ins between school food programs and nutritional education. Inspiring school principals with the impact of good nutrition and Farm2School programs can energize a whole school's commitment, but it requires a venue they will actually attend to capture their attention. Engaging farmers in the challenge of developing richer educational farm experiences is also a critical piece in the puzzle.

Recommended Action #20: Provide equipment grants earmarked to increase the school food program's capacity to process fresh produce efficiently. The focus of these grants is to provide committed food service administrators with tools specifically needed to clean, prepare, cook, serve and store additional fresh produce. **Goal:** at least \$50,000/year in

new funding over three years. **Rationale:** SFA respondents identified the need for certain equipment to store process and prepare and serve local produce efficiently, including refrigeration and freezer space, salad bar and soup serving units; additional sink space to wash fresh produce, and processing equipment.

Recommended Action #21: Provide mini-grants for new Farm2School partnership activities. In addition to equipment purchases, funding is needed to develop Farm2School curriculum, and promote innovative activities that deepen the connection between students' experience of nutrition and local agriculture. **Goal:** at least \$50,000/ year in new funding over three years to support 100 new Farm2School Initiatives. **Rationale:** a relatively small infusion of extra funds for planning, food purchases, transportation, and gardens can transform Farm2School programs in ways that dramatically increase the level of student participation and the depth of educational experience. These program min-grants also develop more effective and innovative ways to present nutritional content that can be shared with other Vermont school systems.

Recommended Action #22: Provide funding to support light processing and value-added foods capable to use by school food programs. This recommendation recognizes the school food program is only a relatively small component of the market needed to justify capital expenditures for most value-added and processing facilities and equipment. This may also take the form of developing healthy "vending machine" capacity in schools that could offer sale of healthy local alternatives. **Goal:** provide at least \$50,000 in start up funding for at least one central light processing facility focused on products used by the school food system. **Rationale:** as with *Recommended Action #9*, several of the most promising avenues for increasing Vermont-based product sales in the school food program require capital investments greater than can be justified based on school food sales alone. These include efforts to provide light processing (e.g. peeled baby carrots or shredded cabbage), value added products, (e.g. soups or and baked goods) and new products (e.g. smaller size yogurt servings). These initiatives depend upon there being other larger marketing channels such as restaurant, retail or other institutional sales for the new products created.

IV. Impacts

This section of the assessment focuses on how the 22 recommended Farm2School Actions impact each of the key stakeholders in the Vermont School Food Program. How much additional Vermont product sales can we reasonable expect? How much will these changes affect school meals cost, local budgets, and legislative funding? How will they impact school food workers, teachers and administrators, local governments, and state agencies? Pursuing these recommendations and accomplishing the goals set out in this report would have the following implications on key elements of the Vermont school food system over the next three years.

Sale of Vermont Products

Starting from small base of existing Vermont product sales to SFAs, the consultant examined what potential exists to increase school purchases of Vermont fruits, vegetables and dairy products over the next several years. There are two basic strategies for School Food Authorities to increase the sale of these products: a) purchase more of these products as a percentage of all food purchased; and b) buy a higher share of these products from local sources.

Initial discussions with the operations managers for three produce wholesalers all suggest that it would be possible to double local produce sales if certain relatively simple conditions could be met, including increased focus on summer and fall deliveries, better coordination of produce pick ups, collaboration with schools and farms over product quality and consistency, and greater advance publicity about product availability. Those changes could evolve from focused discussions between a relatively small group of farmers, individual wholesalers, service contract managers, and key school food administrators. They have the potential of increasing local produce sales by \$100,000 or more annually.

One of the more encouraging examples of what is possible comes from the Burlington Public Schools where the food service increased purchases of local produce from less than \$1,000 in 2003 to over \$10,000 in local purchases and local produce donations just two years later. If all School Food Authorities in Vermont purchased a comparable amount of local produce per meal, the result would be an overall increase of \$1 million per year in statewide sales.

In the consultant's view, accomplishing all of the goals set out in the previous recommendations would result in a projected increase of at least \$460,000/ year in local school food purchases within three years. More than half of these new sales would be in Vermont-grown apples and vegetables, with the bulk of the remaining new sales coming in cheese and dairy products. This represents a 150 percent increase over the current level of sales of Vermont products by schools.

Impact on Farmers

In addition to this increase in sales, 100 more farms would engage in some form of farm-school partnership, with at least 50 farmers receiving training to enrich the role of farmers in the nutritional curriculum. These new farm-school partnerships will introduce the nutritional benefits of “buying local” from Vermont farms to more than a third of school children in Vermont.

Impact on School Food Workers

School food workers already face increasing pressure to provide healthier meals. That pressure is likely to continue to increase. These recommended actions provide school food workers with additional resources in terms of training, equipment, and additional funding to purchase fresh and local produce. Actions to recognize outstanding practices and advocate for more health-consciousness in hiring new school food administrators help increase the status and professionalism of these jobs. As these workers are asked to take on more responsibility for nutrition, the case for paying them higher wages grows more compelling.

Impact on Teachers and Administrators

These recommendations would result in an increase in nutritional training for at least 500 teachers and principals over three years. It would increase participation in Farm2School initiatives by at least 100 new schools and would continue to increase the focus on the nutritional education curriculum. Funding recommendations provide resources for at least 50 new initiatives and resource materials. An award program will provide recognition for those school systems, teachers and administrators who excel in this area.

Impact on State Government

These Farm2School recommendations increase the role of the State Commodity Office in advocating for greater local and fresh produce purchases in the DoD Fresh and USDA Commodity Program. The VT AAFM would focus its marketing and processing efforts on products that support the greater use of local products in the school food program. The role of the VT Child Nutrition Programs would expand to include development of methodologies to measure the success of these initiatives in child health and educational improvements. One of these state agencies may have primary responsibility to oversee training, outreach, and evaluation of the range of Farm2School initiatives.

Impact on School Meal Charges

The recommendations do not require any direct additional food costs be borne by increasing meal charges. However, one goal of these initiatives is to increase the level of local support needed to shift the additional cost of offering more fresh local produce from state funded support to some combination of higher meal charges and local funding over

time. This level of additional cost is in the range of \$.05 to \$.10/ meal, including both food and labor costs. Some of these added costs may be borne by greater participation rates in the meal program as it makes improvements in nutrition and increases student involvement in meal choices.

Impact on Local Government

Initially, the direct impact of these recommendations on local government is limited. State funding would pick up most of the initial costs of Farm2School initiatives. Increased student participation and greater distribution efficiency can help offset added costs. However, as these initiatives bring greater awareness to the importance of nutrition in school foods, support should grow to address local needs around food purchases, kitchen facilities, staffing, and wages. These initiatives set the stage for local schools to incorporate some of the costs initially borne by legislative funding. State funding for these efforts should become easier to transfer to local sources as they yield positive impacts and as local support grows. Over the long term, developing greater linkage between educators and food service workers will “professionalize” the latter and increase pressure to pay higher wages. These new costs will likely fall on local budgets to cover.

Impact on Food Distributors

The major produce wholesalers in Vermont would be asked to follow through on their expressed interest in developing local produce sales to SFAs, by participating in developing protocols to address pick up delivery, pricing and standardization issues. They would also be encouraged to distribute order forms and other marketing materials that identify and highlight local products.

Impact on Legislative Funding

The recommendations call for the Vermont legislature to fund at least \$1.2 million in Farm2School initiative support over the next three years. This amounts to about one percent of the total cost of the school food program over this three-year period. Roughly 30 percent of these funds will provide for direct purchase of local produce; another 30 percent will increase the training and infrastructure for school food administrators to utilize more fresh produce; 30 percent will result in direct Farm2School activities for more than 100 School Food Authorities in the state; the remaining 10 percent will support the development of light processing and value added initiatives using Vermont products. Most of this funding can be viewed as “start up” funding that gives stressed programs some resources to demonstrate value, the cost of which will eventually transfer to local budgets and/or slightly higher meal costs be incorporated into SFA budgets. The roughly \$400,000/ year recommended to support these school food initiatives represent less than three percent of the total school food budget statewide and represents less than one percent of annual \$141 million cost to treat health conditions related to poor eating habits in Vermont.

Impact on Child Nutrition

Accomplishment of these recommended actions would more than double the amount of Vermont fruits, vegetables, cheese, and dairy products consumed in Vermont schools. It will increase total consumption of fresh fruits and vegetables by more than 20 percent. At least one third of all SFAs in Vermont will be engaged in local Farm2School initiatives with over 350 school food administrators, food workers, teachers and administrators receiving training on the role of Farm2School initiatives on healthy eating.

Summary

The driving goal in the Farm2School initiative is to promote healthier children and a healthier Vermont food system. Buying more fresh local produce should be seen as a means to achieving that goal. In the short-term, the capacity of the system to increase purchases of Vermont products is limited. At whatever level of purchase, the value of buying fresh local food is greatly enhanced by the direct connection of healthy eating with a place-based nutritional and agricultural curriculum. Student participation in discovering, growing, recipe-making, cooking, and tasting these foods represents the crucial link that drives real change in eating habits. Local school food purchases alone will not change basic nutritional values nor will it serve to secure the future of local agriculture in Vermont. Vermont agriculture's self-interest in this effort is a long-term one: their participation will develop the connection with and loyalty of the next generation of Vermont consumers.

APPENDIX A: Individuals Interviewed for F2S Assessment

SCHOOL FOOD ADMINISTRATORS

- Doug Davis Burlington Public Schools
- Donna Derenthal Sharon Elementary School
- Mark Podgwaithe Harwood High School
- Valerie Simmons Hardwick Elementary School
- Claire Simpson Warren Elementary School

CONTRACT SERVICE MANAGERS

- Scott Choiniere Abbey Food Service Group, *Enosburg Falls*
- William VanZandt Café Services, *Londonderry, NH*

FOOD DISTRIBUTORS

- Fernando Cresta Burlington Food Service Company, *Burlington*
- Mark Curran Black River Produce, *Proctorsville*
- Alan Freund Squash Valley Produce, *Waterbury*

FARMERS

- Hank Bissell Lewis Creek Farm, *Starkboro*
- Thomas Case Arathusa Collective Farm, *Burlington*
- Bruce Kaufman Riverside Farm, *Hardwick*
- Suzanne Long Luna Bleu Farm, *South Royalton*

STATE OFFICIALS

- Josephine Busha VT Department of Education
- Rep. Mitzi Johnson VT House Committee on Agriculture
- Bill Jordan NY State Dept of Agriculture and Markets
- David Lane VT Agency of Agriculture
- Rep. Rosemary McLaughlin VT House Committee on Education
- Holly Peake VT CCSD- Donated Food
- Andrew Snyder VT Department of Education

OTHER

- Megan Camp Shelburne Farms, *Shelburne*
- Antonia Demas Food Studies Institute, *Trumansburg, NY*
- Dorigen Keeney VT Campaign to End Childhood Hunger,
Burlington
- Joseph Kiefer Food Works, *Montpelier*
- Abbie Nelson VT Food Education Every Day, *Richmond*
- Betsy Rosenbluth Office of Community Development, *Burlington*
- Enid Wonnacott NOFA-Vermont, *Huntington*

APPENDIX B

How Do We Feed Vermont's School Children? An Insider's Guide to Vermont School Meals

Provided Separately

APPENDIX C

Summary of Farm2School Activities in the U.S.

Programs to develop value-added food products for schools and local markets

HEALDSBURG, CA

The Farm-to-School Program in Healdsburg features a la carte items such as burritos and tamales that are made with local produce. Most of the food preparation is done by Ms. May, the initiator of the Healdsburg Farm-to-School Program. The purchase of equipment for this project, as well as the educational aspect is funded by a \$30,000 grant from a Shaping Health as Partners in Education (SHAPE). (www.foodsecurity.org/f2s_case_healdsburg.pdf)

NEW YORK

Cornell's Farm-to-School website features recipes of value-added product featuring local produce (soups, apple crisp, salad, etc.) that school food directors in New York have used.

GADSDEN COUNTY, FLORIDA

With the New North Florida Cooperative Association, farmers develop three or four different produce items such as collard greens, leafy greens, peas, grapes, turnip greens, strawberries, blackberries and watermelon, each season to sell to the local schools year-round. The school food service incorporates these items into their menu in the form of side dishes and desserts. The co-op has purchased a sink and cutting machine to process their produce, making it easier for the school food service to work with and provide value-added product to the schools. (www.farmentoschool.org/fl/programs.htm)

NEW JERSEY

In the Farm-to-School Program in New Jersey, new products are being piloted, such as frozen blueberry cups and peach cups. (www.farmentoschool.org/nj/programs.htm)

HARTFORD, CT

The Farm-to-School Program works with a local wholesaler who connects with the farmers to produce a food product that is convenient and desirable to the school food service staff. The wholesaler develops value-added products, relieving the district of labor costs. (www.farmentoschool.org/ct/fresh_start.htm)

Increases in state or local funding for school meal/educational programs in response to Healthy Child initiatives

NEW YORK

A New York state Farm-to-School Law is facilitating the purchasing of local produce by schools and creates an annual New York Harvest for New York Kids week to encourage children's farm connection.(Kalb et. Al. 16)

PENNSYLVANIA

Pennsylvania State Senators Mike Waugh(R) and Noah Wegner(R) proposed agricultural legislation that would include an initiative for a "Farm-to-School agricultural education and nutrition program"(Preserving the Pennsylvania Farmer)

CALIFORNIA

The California Farm to School Nutrition Improvement Act, which establishes the California Farm to School program to improve school meals and fight childhood obesity through healthy and fresh locally-grown food, is co-sponsored by the CFJC and the Community Alliance with Family Farmers (CAFF). The Act would establish training, information connections and facilitate food distribution for the Farm-to-School program. (www.foodsecurity.org/california/CA_Issues.html)

HEALDSBURG, CA

The Farm-to-School Program in Healdsburg has received two grants from SHAPE: Shaping Health as Partners in Education (\$30,000 and \$50,000) for professional development and equipment purchasing. (www.foodsecurity.org/f2s_case_healdsburg.pdf)

KENTUCKY

Kentucky has a statewide Farm-to-School Program initiated by the USDA, the Kentucky Dept. of Agriculture, the University of Kentucky, and the Kentucky Dept. of Education. It is fully funded by the state of Kentucky and includes the Clover CAT (Cooking, Activity, and Time to be well) curriculum that encourages exercise, nutrition, and community gardens. (www.foodsecurity.org/f2s_case_kentucky.pdf)

CONNECTICUT

The state of Connecticut was awarded a \$200,000 Team Nutrition Training grant from the USDA during the summer of 2004. The grant will fund the development of curriculum for a food service manager-training program that will teach food service directors how to use local produce in the schools and will incorporate food, agriculture, and nutrition education in the classroom. (www.farmtoschool.org/ct/school_meals.htm)

Descriptions of Food Distribution from Farm to School

SANTA FE, NEW MEXICO

The school district and the New Mexico's Farmer's Market Association work together to develop a cooperative distribution system where food is delivered directly to the schools or to the district's central warehouse. (www.foodsecurity.org/f2s_case_newmexico.pdf)

GADSDEN COUNTY, FLORIDA

In 1995 a group of farmers formed the New North Florida Cooperative and launched a Farm-to-School Program in Gadsden County, FL. The Cooperative handles its own distribution and makes deliveries to the school 2-3 days per week but also works with outside vendors. The cooperative bought a delivery trailer and installed a cooling system and Styrofoam insulation to keep the produce cool. The cooperative workers unload the boxes and stack them in the school food storage facilities and inform the cafeteria manager of the delivery. (www.foodsecurity.org/f2s_case_florida.pdf)

HEALDSBURG, CA

In the Healdsburg Farm-to-School Project, the farmers deliver directly to the schools one morning a week (for a salad bar that runs 2 days a week.)

SANTA MONICA-MALIBU, CA

The school district has its own truck that picks up the produce at the farmer's market (twice weekly) and transports it to the central kitchen. One driver delivers the food to Santa Monica schools and another to the Malibu schools. Because the school provides delivery, the farmers sell their produce at wholesale prices. (www.foodsecurity.org/f2s_case_santamonica-malibu.pdf)

BERKELEY, CA

The school district places their orders in advance. The produce is then picked up at the Berkeley Farmer's Market on Tuesdays and Saturdays by the school district's Child Nutrition Field Supervisor. On Tuesday the produce is taken to the schools for the Wednesday, Thursday, and Friday menus. On Saturdays the produce is taken to the school district's warehouse where it is stored and delivered to the school on Monday for Monday and Tuesday's menu.

VENTURA, CA

The day before the salad bar is offered (at least twice weekly), the salad bar coordinator picks up the produce from local farms and delivers it to the schools, which takes from one to three hours each day of the salad bar. A grant from the USDA covers the salad bar coordinator's salary and mileage costs, which was on average, \$17.50/day in mileage and \$33.00/day in labor. The salad bar costs for delivery was approximately \$50.50 per day of the salad bar. (www.farmentoschool.org/ca/ventura_evaluation.pdf pg. 22)

KENTUCKY

The school districts around the state make their produce orders in May. The Department of Agriculture inspects and approves of contracted distributors before they become

involved in the program. The produce is shipped from contracted distributors to other distribution sites (5 in Kentucky, one in Tennessee, and one in Ohio) where the food is shipped to the schools once a week. For the school districts with a central kitchen, the food service directors at each school place orders to their local distributor in addition to the food received by the central kitchen. The central kitchen places a produce request once a month for a bid. The bids are given to the local school food service directors who chose items from the bid list. (www.foodsecurity.org/f2s_case_kentucky.pdf)

NORTH CAROLINA

The Farm-to-School Program in North Carolina is a collective effort between the Food Distribution Divisions of the North Carolina Department of Agriculture and Consumer Affairs, the Department of Defense, and the Markets Division. The quantity of food the school district requires is assessed by the Food Distributions Division, which reports this amount to the Department of Defense. The Dept. of Defense coordinates with the Markets Division to purchase the produce from local farmers. Once the food is procured, the Food Distribution Division delivers it to the schools or the schools central kitchen on Mondays. The finances are handled by the Dept. of Defense which bills the schools and distributes the payment to the farmers. (www.farmentoschool.org/nc/)

OTHER

“Farmers selling direct to schools should have substantial liability coverage. However, when a farmer provides food to schools through a commercial food distributor (who likely has a \$5 million dollar policy), the distributor’s coverage is in effect. It is not advisable for farmers to sell directly to schools without having liability insurance... Similarly, distributors that strive to carry local food...indicated that distributing fresh food to schools is barely profitable for them because of the small average size of the orders and the amount of travel time required. Sales to larger schools and/or districts have more profit potential”(Grubinger 5).

Studies in changes in eating habits based on educational initiatives, including quantitative research

LOS ANGELES, CA

According to a study done by UCLA, when a Farmer's Market Salad Bar was piloted at a Los Angeles elementary school, student's average fruit and vegetable intake went up one serving per day. The amount of calories consumed by the students decreased by 200 and the fat intake went down 11 grams. The introduction of the salad bar also increased participation in the National School Lunch Program. (Kalb, Markley & Tedeschi 3).

DAVIS UNIFIED SCHOOL DISTRICT, CA

Studies done in California show that Farmer's Market Salad Bar Programs and the presence of fresh food help to increase participation in the National School Lunch Program. In the Davis Unified School District, students ate 3-3.5 servings of fruit and vegetables from the salad bar as opposed to 1 serving from the hot lunch. The students who chose the salad bar option also wasted less food than students eating hot lunches. (www.farmtoschool.org/faq.htm#two)

Gail Feenstra's study with the Farmer's Market Salad Bar at the Davis Unified School District in the spring of 2004, which collected images of lunches chosen by elementary school children, showed that children prefer fresh fruits and vegetables over the hot lunch. (<http://news.ucanr.org/newsstorymain.cfm?story=637>)

VENTURA, CA

In collaboration with the Healthy Schools project, the Farmer's Market Salad Bar was chosen over the hot lunch by a ratio of 2:1. (www.farmtoschool.org/ca/ventura_evaluation.pdf)

In Ventura, a comparative study was done between two elementary schools—Juanamaria, which runs a Farmer's Market Salad Bar and education program for one year, and Montvalo, which introduced the salad bar only recently. "The results of these observations indicated that the Juanamaria students, after several months of guided salad bar experience, were far more likely to chose a balanced meal than students who were new to the salad bar process and had not yet received nutritional guidance at the salad bar. Overall, approximately 75% of Juanamaria students were able to choose a healthy salad bar lunch without adult intervention, compared to only 46% of Montvalo students. The demographic differences between the two groups cannot be ruled out as a factor in student's ability to choose a balanced meal. However, experience with the salad bar under the repeated guidance of knowledgeable adults appeared to be an important factor for helping students to learn the skills necessary to chose a healthy, balanced, salad bar lunch. Once these skills were, students seemed to be able to apply them with a little intervention. It seems likely that nutrition education was also an important aspect of this ability, however, that could not be determined from this evaluation." (www.farmtoschool.org/ca/ventura_evaluation.pdf)

Fifth grade students from Juanamaria were tested on their nutritional knowledge and their preferences of produce after having been introduced to the Healthy Schools Project and were compared to fifth grade students at Montalvo and Foster schools who were not exposed to the Healthy Schools curriculum. On average, the Junamaria students scored 73% better than the students at the other schools.

Results showing significant increases in local produce purchases

NEW YORK

In a survey conducted by the New York Farm to School Coordinating Committee of 373 school districts, almost 25% of the food service directors purchase fresh produce directly from a farmer and 72% buy local New York produce directly from a farmer or vendor. (www.cce.cornell.edu/farmentoschool/resources.cfm)

NORTH CAROLINA

In 2000-2001, thirty school systems bought a total of \$415,653 in North Carolina-grown produce. (Grubinger 7).

NEW JERSEY

In the 2003 school year New Jersey schools consumed 400,000 pounds of local produce from September to October. In the 2004 school year, New Jersey schools consumed 600,000 pounds of local produce from September through December. (www.farmentoschool.org/nj/program.htm)

HARTFORD, CT

As part of the Farm Fresh Start Program in Hartford, CT, three schools bought approximately 17,495 pounds of locally grown produce from September 6 to November 15, 1996. This number composes 76% of the total produce purchased during this time.

DAVIS, CA

During the time that the farm-to-school salad bar program has been implemented, the amount of produce purchases by the school district has more than triples from \$13,000 to \$42,000. 38% of that produce is locally-grown.

VENTURA, CA

During the 2003-2004 school year, the Gold Coast Growers Collaborative in Ventura, CA sold \$84,000 worth of produce to the Ventura School District, which marked a 45% increase over the previous year. Preliminary studies of the Davis, Winters, and Ventura school districts in California show an increase in produce purchases.

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APPENDIX D

Farm2School Research Summaries

From the Food Studies Institute

Here is a brief summary of some of the results obtained from research-based projects that have introduced the Food is Elementary curriculum into schools. More detailed information can be requested directly from the Food Studies Institute

Trumansburg, NY

September 1993-June 1994

Antonia Demas entered a Ph.D. program in 1991 to scientifically validate her 25 years of work in the area of nutrition education, which she completed at Cornell University in January 1995. The Food is Elementary (FIE) curriculum is an outgrowth of her award-winning¹ doctoral research which was conducted in Trumansburg, NY. Her data demonstrated that:

RESULTS:

Eating behavior

- After sensory experience in the classroom with 16 new nutritious commodity-based foods, the intervention students ate significantly greater amounts of these foods when served in the lunch room. This was up to 20 times more than the control students, who rarely touched the new food over the course of the year;
- 35% of the parents from the intervention group reported positive changes in *family* eating behaviors. These improvements were based upon what the participating students taught the family (the “trickle up” effect);

Academic achievement

- 100% of students in the intervention group improved in their knowledge of food, nutrition, and multiculturalism during the year. As one student wrote, “I learned about some customs in my parent’s home countries that I didn’t know existed!”

Florida International University (FIU)

September 1998-June 1999

A pilot study conducted in collaboration with Florida International University and four of the most at-risk elementary schools in Miami, (1998 – 1999) demonstrated the following results out of a sample of 248 students:

¹ USDA, Most Creative Implementation of the Dietary Guidelines, 1994, Society for Nutrition Education, Excellence in Nutrition Education, 1994.

RESULTS

Eating behavior

- 60% of students reported that their eating habits had improved as a direct result of the program

Academic achievement

- 100% of the students learned elements of nutrition objectives specified in the Miami-Dade County schools health curriculum;
- 80% of students expressed a desire to see the FIE recipes served in the school lunch program and said they would choose these foods if offered;

Family

- 71% of students reported that they cook the Food Is Elementary (FIE) curriculum recipes at home.

One school principal commented that, “Students, teachers, and parents have reported to me that their understanding of nutrition has improved 100% as a result of the program. The children enjoyed the project tremendously. It was broadening for them to experience diversity and the opportunity to try something new.”

Food Education Every Day (FEED), Vermont

January 1997 - Ongoing.

A collaborative research project between the Food Studies Institute, North-East Organic Farming Association (NOFA), Food Works and Shelburne Farms

Dr. Demas has been the consultant for the Vermont Food Education Every Day (VT FEED) program for the past eight years. VT FEED works with schools and communities to raise awareness about healthy food, the role of Vermont farms and farmers, and good nutrition. They act as a catalyst for rebuilding healthy food systems, and cultivate links between the classrooms, cafeterias, local farms, and communities.

RESULTS:

Eating behavior

- Each classroom evaluated showed children changing their favorite foods from unhealthy to healthy options, with a total of 64 nutritious foods being added

Academic achievement

- All students receiving the Food is Elementary curriculum showed improvements in food and nutrition knowledge. The mean increase between the pre and post-test scores was 35%.

Family

- Out of 120 parents responding to the survey, 81% reported positive changes in their child's eating behavior
- Out of 124 parents responding to a question about whether they wanted nutrition to be a permanent part of their child's curriculum all but one answered "yes"

Community involvement

- Participating teachers and principals want nutrition education to occur, being aware that a lack of nutrition knowledge can have detrimental affects on children's health.

Hawaii – 8 Language Immersion Schools

September 2001 – Ongoing.

Dr Demas has been the consultant on the Healthy Hawaiian Initiative, funded through the health department, for the past 4 years. This program teaches students in 8 language immersion schools (primarily for Native Hawaiians) about food, nutrition, growing native plants, and health. Students help prepare nutritious lunches and cook dinner with their families every other week at the school. This project has been extremely successful in improving the health of these students and their families.

Bay Point School for Boys, Miami, Florida

February – May, 2001

The Bay Point Pilot Study was conducted as part of a food, nutrition, and cooking program to educate staff and students about healthy eating and the role food plays in health, academic performance, and behavior. The Bay Point School for Boys in Miami, Florida, is a residential school for teenage males who have been sent to Bay Point by the courts.

Dr. Demas was invited by the administration to develop healthier options in the cafeteria and design a culinary arts/nutrition curriculum as a vocational choice for students. Nineteen students signed up to take the culinary arts course, along with the kitchen staff. Because the interest and cooperation students and staff showed in nutrition, Dr. Demas suggested that she design a pilot study to evaluate the effect healthy food has upon student health, behavior, and academic performance.

Nineteen (19) students participated in the study. For three weeks they prepared and ate only plant-based meals, drank eight glasses of water a day and kept journals document personal experience. All of these students reported improvements in: grade point averages, athletic performance, aggressive behavior, acne, strength, and overall wellbeing. Most of the students also reported weight loss.

RESULTS:

Medical results interpreted by Dr. Harvey Zarren, cardiologist, Lynn, MA.

- Four (4) students of the eleven (11) who had pre and post study blood levels had starting total cholesterol levels above 150mg/dl. All of these students had decreased levels of total cholesterol at the end of the three week study period. The decreases varied from 3 to 23%, average 15%. Traditional preventive cardiology wisdom teaches that a 1% drop in total cholesterol results in a 2% drop in risk of future heart attacks. Thus a 15% drop in total cholesterol, if sustained, might decrease the risk of future heart disease by 30%, a significant reduction in risk.
- Homocysteine levels dropped an average of 28%, but levels were not measured fasting, so the results are interesting but not clearly significant. Elevated homocysteine is implicated in arterial and venous disease and Alzheimer's disease. Animal source proteins contain three (3) times the amount of methionine compared to plant source protein. Methionine is the precursor of homocysteine. It is reasonable that changing from an animal source food diet to a plant based diet will lower homocysteine levels and likely lower the risk of vascular disease and possibly Alzheimer's disease.
- Seven (7) of the eleven (11) patients who had blood work done had weight loss ranging from one (1) to two (2) kilograms over the month long study. The average weight loss was 1.4 kilograms or three (3) pounds. Obesity is epidemic in young people in the United States. A dietary change that can result in weight loss will help to prevent diabetes and cardiovascular disease and can likely cut the risk of common cancers such as colon cancer.

The Bay Point Study is very interesting for its behavioral and subjective results. The small amount of data, while not statistically significant is also very interesting. The idea that such a short term study can decrease weight, decrease elevated cholesterol levels quite significantly and might also decrease homocysteine levels need further research.

Among the benefits of changing to plant based diets is the potential improvement in vascular function affecting skeletal muscles and the blood supply to organs such as the heart. Arteries which supply oxygenated blood and fuel to muscles in the body are constantly opening and closing to alter blood supply to various parts of the body. The arteries open or enlarge under the influence of a substance called endothelial derived relaxing factor which signals the muscle cuff around arteries to relax, allowing the arteries to open or dilate. Studies have shown that ingestion of a fatty meal can decrease or stop production of relaxing factor for up to six hours in normal subjects. Such people have decreased muscle blood supply during that time. Plant based diets are intrinsically lower in fat than are animal based diets and would be expected to affect blood vessel function less adversely.

South Bend, Indiana*September 2004-May 2005*

A collaborative project between Dr Demas and Food Studies Institute and Dr Tish Kelly-Holmes, St Joseph Elementary School, Martin's Grocery Store, and Memorial Hospital.

This project looked at improvements in health and educational measures in both children and adults being taught the Food is Elementary curriculum. We were also able to monitor changes in shopping behavior that were influenced through learning about healthy foods. This shopping data is still under analysis and will be released soon. Of those exposed to the FIE curriculum, Health and Educational findings include:

RESULTS:**Academic achievement**

- On average, Nutrition Knowledge test scores improved by 99% for children and 96% for adults, after the curriculum had been taught.

Health improvements

- An 89% average improvement in health scores for both groups
- A decrease in BMI (Body Mass Index) for 49 out of 68 children (adjusted for growth): 72% change.
- A decrease in BMI for 33 out of 42 adults: 79% change
- Out of the 21 students whose BMI's were in the 85th to 97th percentile at the beginning of the study, (30% of those tested), 6 were no longer in this category at the end of the study, with 22% considered obese at the end of the five month period.