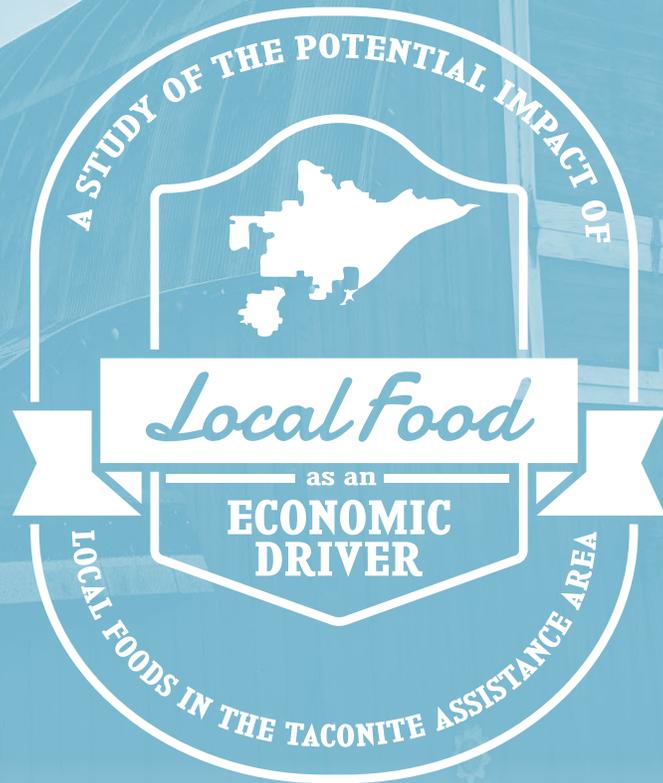


SUMMARY OF RESULTS



Localizing food production and consumption for the Iron Range Resources & Rehabilitation service area (hereafter referred to as the Agency service area and/or the Taconite Assistance Area) will add between 250 and 3500 jobs in agriculture and value-added processing to our region, retain between \$51 million and \$256 million annually in food dollars within the region, and have substantial economic spillover effects to related businesses. These impacts of localizing the purchase of food under a range of scenarios point to the need to continue activities to support the development of local food systems in the region.

Currently, the 155,020 people in 68,428 households of the region spend \$469 million on food (\$262 million on food for use at home and \$207 million on food service). Of this \$469 million, only a small percent currently goes directly to local growers and processors (less than 0.5 percent of total household spending is for food purchased direct from local suppliers). Any increase in purchasing from local producers will result in the retention of food dollars in the regional economy. We estimate that if the region purchased 20%

of its food locally—an ambitious, yet an attainable goal in keeping with the Superior Compact—\$51 million annually in food dollars would be kept in the region. At 100%, the region could retain as much as \$256 million annually in food sales.

To meet the regional demand for food, we estimate that the region would require between 122,410 and 164,057 acres in food production based on two alternate diet scenarios. Eighty-three percent of the Standard American Diet can be grown locally, and 100% of the Range Healthy Diet can be produced locally. The region has enough land to meet these requirements. Today the Taconite Assistance Area contains 2.1 million acres of farmland suitable for agriculture.

The Agency's service area can build a more robust, diverse and resilient economy by providing more and more of our basic needs—most notably food for our communities and our region. We don't often think of our food system as a key part of our infrastructure, but a vibrant regional food structure can support a stable economy.

HOW MUCH FOOD DO IRON RANGE HOUSEHOLDS PURCHASE EACH YEAR?

The project team estimated that residents in the Agency's service area spend a total of \$469 million on food annually, including \$262 million on food consumed at home and \$207 million on food service consumed away from home. Not all spending on food at the retail level goes towards food itself, however, since some margin of food sales supports overhead. We estimate that the amount spent on food (cost outlay for food sellers) decreases to \$193 million for food-at-home sales and \$62 million on food service according to national benchmarks for food retailers and food service respectively (Roernick et al., 2014; Baker Tilly, 2014).

The study team estimated how much residents of the Agency's service area spent on food by adjusting the national Consumer Expenditure Data (CEX) data based on the demographic profile of households to better represent the region. One of the best measures of American household spending, the consumer expenditure survey by the Bureau of Labor Statistics details household spending across many categories and subcategories from motor oil to gifts. Since the purpose of this report is to identify the size of the food market in the region, the study group also combined CEX spending data with national data from the USDA to break down household spending by outlet and food purchase location.

IRON RANGE SPENDING ON FOOD	A. ESTIMATES OF SALES AT OUTLET	B. ESTIMATES OF COST OUTLAY FOR FOOD AT OUTLET	C. COST OUTLAY AT 20% MARKET SHARE
FOOD PURCHASED FROM ALL OUTLETS AND CONSUMED AT HOME	\$261,590,048	\$193,576,636	\$38,715,327
FOOD PURCHASED FROM ALL OUTLETS AND CONSUMED AWAY FROM HOME	\$207,201,763	\$62,160,529	\$12,432,106
TOTAL	\$468,791,811	\$255,737,165	\$51,147,433

Figure 1a: Food Sales (Sources: BLS, ERS and estimates by University of Minnesota Extension)

Figure 1a illustrates the consumer dollars spent on food (A), the portion of the retailers' expenses that go directly for food (B) and the dollars that could be retained on the Range with a 20% buy local commitment (C).

WHAT WOULD IT TAKE TO GROW MOST OR ALL OF OUR OWN FOOD?

We looked at two possible diets for consumers in our region. They represent a typical American diet on one end of the continuum and a 100% local healthy diet at the other end of the continuum. (See Appendix 1 for a more detailed explanation about the source of these diet scenarios.) We use these diets as a basis for assessing the growth potential in local food production to meet these diet needs, both at the farmers level and at a regional economic level. The typical American diet used here is labeled the Standard American Diet (SAD) of which approximately 83% can be grown in the region. In other words, all but 17% of the foods in the SAD can be grown in the Agency's service area. The other diet is a 100% local diet labeled the Range Healthy Diet (RHD), of which 100% can be grown in the Agency's service area.

DIETS	MEATS & EGGS	NUTS & SEEDS	DAIRY	LEGUMES	FRUIT	VEG.	GRAINS	ADDED FATS	ADDED SUGARS	TOTAL ACRES	FARMS
SAD	87,819	12	30,341	799	3,052	4,680	7,412	25,881	4,061	164,057	1,614
RHD	45,548	3,795	21,367	11,107	18,179	9,669	7,120	5,624	0	122,420	4,343

Figure 2a: Total acres needed to supply the Standard American Diet (SAD) and Range Healthy Diet (RHD)

In this study, we are examining the potential portion of this total (with a target of 20%) being procured from local farms, instead of being shipped into our region from distant US or foreign sources. Not only would the on-farm production have a direct financial effect in our region, but the collateral economics of this localization of the food system would also be extensive. For both scenarios, the population of 155,020 (provided by Agency staff) is used along with the per acre production and land requirements for the food needed in both diets. To do this, we determined how much land was needed for each diet to feed the total population. The differences found in the two diet scenarios result from the different proportion of each diet that can be grown in our region and the quantity of the different foods needed for each diet. We do this calculation for all of the products typically consumed in both diets. The results show that the total acres needed (all foods) for the SAD diet are 164,057 translating to 1,614 farms and 122,410 for the RHD and 4,343 farms.

WHAT WOULD BE THE IMPACTS OF PRODUCING AND PURCHASING OUR FOOD WITHIN THE REGION?

IMPACT ON FARM-RELATED INDUSTRIES AND ON GROWERS

Money spent with farmers in the Agency's service area when sourcing its food from within its borders benefits not only the farm operations, but also spills over to related industries such as veterinary services, trucking, and repairs. The study team employed farm financial data from Minnesota farms to estimate economic spillover impacts for select commodities. The Center for Farm Financial Management at the University of Minnesota aggregates data collected from hundreds of farms each year in its FINBIN database (<https://finbin.umn.edu>). Used by farms for benchmarking purposes, this public data provides detailed data on farm income and spending on direct inputs and overhead expenses.

SUMMARY OF LOCAL IMPACT IN DOLLARS

FARM SALES, NET INCOME, AND ECONOMIC SPILLOVER TO LOCAL INDUSTRIES FOR SELECTED PRODUCTS	SAD - STANDARD AMERICAN DIET <i>83% CAN BE SOURCED LOCALLY</i>	RHD - RANGE HEALTHY DIET <i>100% CAN BE SOURCED LOCALLY</i>
1. IRON RANGE ANNUAL FARM SALES	\$46,352,802	\$95,770,253
2. NET CASH INCOME TO FARMERS	\$20,815,313	\$43,006,845
3. FARMER DIRECT EXPENSES (SPILLOVER INTO OTHER LOCAL INDUSTRIES FOR SELECTED PRODUCTS):		
FRUITS & VEGETABLES	\$25,541,733	\$52,722,176
BEEF	\$31,922,203	\$14,193,775
FLUID MILK	\$4,359,663	\$3,070,185
4. TOTAL SPILLOVER FOR FRUITS & VEGETABLES, BEEF, AND FLUID MILK (EXCLUDING OTHER PRODUCTS)	\$61,823,599	\$70,036,136

Figure 3a: (Source: FINBIN Center for Farm Financial Management, University of Minnesota)

The economic impact of producing and purchasing our food within the region is substantial. Farmers themselves stand to gain between \$15.8m and \$95.7m in annual cash income, depending on the percent of local production and purchasing. (Figure 3a, line 1). As farmers pass this gross income on in meeting their direct expenses, farm-related industries serving the needs of area farmers could gain between \$41.2 and \$70 million at a minimum (as the spillover figures only take into account fruits & vegetables, beef, and fluid milk). See figure 3a, line 4.

IMPACT ON JOBS IN THE AGENCY’S SERVICE AREA

The study group examined how an increase in local food sourcing in the region would impact jobs. Using IMPLAN data customized to the Arrowhead Region, we estimated jobs in the farm and processing sectors based on a ratio of jobs per total output in those sectors from the IMPLAN model (<http://www.implan.com/>). We estimate that the region would conservatively support between 100 and 3500 jobs in agriculture under a range of food spending. (See Figure 12)

According to the IMPLAN model of the Arrowhead region, there are 0.02 jobs per \$1,000 of sales in the agriculture sector. University of Minnesota Extension research in Central Minnesota found a much higher ratio for vegetable growers of 0.09 jobs per \$1,000 of sales. However, considering that this ratio must represent not only labor-intensive vegetable operations, but also livestock operations, we created our range of jobs based on the 0.02 ratio from IMPLAN and 0.05 ratio to better represent local farms outside of the traditional commodity supply chain. It is reasonable to expect that farms that are currently direct marketing and those serving local markets would have a higher job to sales ratio since they are taking on more supply chain roles than simply production. In this respect, the 0.05 jobs per \$1,000 of sales ratio is sensible if not conservative. To estimate the farm and processing share of the food dollar, we used USDA’s food dollar dataset (<https://www.ers.usda.gov/data-products/food-dollar-series/>). According to their figures, for every dollar spent on food in the United States, 14.8 cents goes to agriculture sector and 15.2 cents goes to processing with the remainder going to related industries such as advertising, food service, and transportation. Again, our method for estimating jobs in this way is conservative since we are using only a portion of total food sales in the region for the target industries of agriculture and processing even though, in reality, when farm operators direct market foods, they essentially take on most aspects of the food chain. Under this assumption, the job impact would increase 6 to 7 times, but we are reporting only conservative estimates in this report.

Sourcing 20% of food from farms in the Agency’s service area would generate between 250-700 jobs in the agricultural sector, whereas 100% would create between 1,500 and 3,500 jobs (see Figure 12). These job estimates are a composite of both proprietors and employees and are not full-time equivalents.

Figure 4a: Estimate of jobs in agriculture (source: IMPLAN and calculations by the study group)

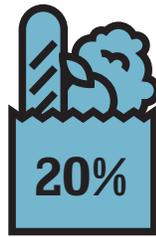
Total Food Spending in Region	% OF TOTAL FOOD SPENDING	TOTAL FOOD SALES	FARM SALES [14.8 CENTS PER DOLLAR]	ADDITIONAL AG JOBS AT IMPLAN RATIO	ADDITIONAL AG JOBS AT 0.05/\$1,000 RATIO
\$468,791,811	20%	\$93,758,362	\$13,876,238	248	694
	100%	\$468,791,811	\$69,381,188	1459	3469

In addition to jobs in agriculture, we expect that localizing food production and consumption will create additional processing jobs in the region. These jobs could be at separate food processing enterprises using local foods or on-farm where operations take on employees to process farm commodities into value-added foods.

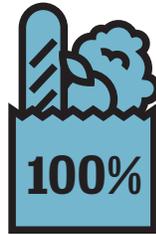
% OF TOTAL FOOD SPENDING KEPT LOCAL

JOBS GENERATED

ANNUAL FOOD DOLLARS KEPT IN SERVICE AREA



248-694



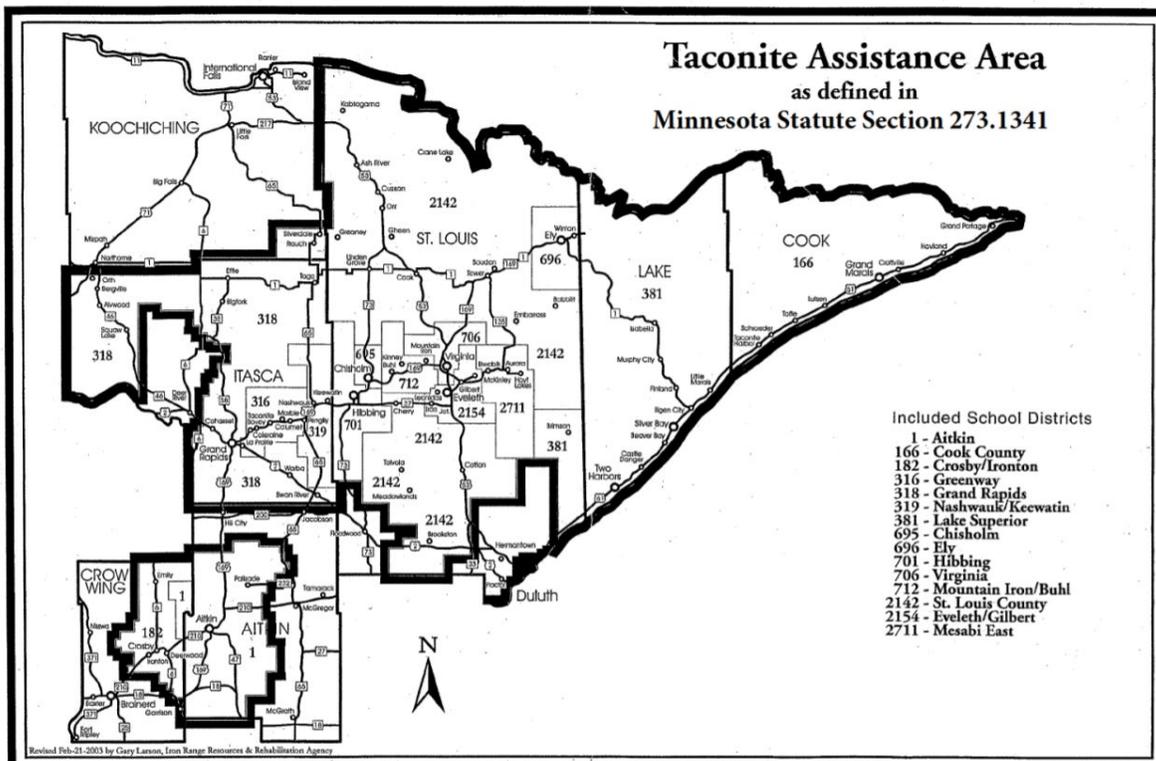
1459-3469



IMPACT ON THE ECONOMY: ANNUAL FOOD DOLLARS RETAINED IN THE AGENCY'S SERVICE AREA

Clearly the aggregate food spending of households in the Agency's service area could have significant impacts if even only a portion was directed towards sourcing from local farm operators. Based on our estimates, the region could retain \$51 million in food sales if only 20% of food purchases were sourced from local farms. This increases up to \$256 million at 100% locally-sourced food. Even directing a small portion of these food dollars to local farms would have significant impacts on farm-related businesses and ripple through the regional economy.

Individual outlets such as restaurants and schools have already begun purchasing food direct from local farms. Full-service restaurants alone are a \$34 million food market. Farms and schools in the Agency's service area are sourcing \$2.1 million in food which could also be sourced from local farm operators. However, few farms currently sell food locally in a significant way and current supply falls far short of demand. Our interviews with farm operators who now market food direct to local consumers point to the need to grow the base of growers and assist existing operators to enter the local food market. The challenges of 'scaling up' local production in this way are many. New and existing operators will need assistance in the areas of production, marketing, and business planning.



RECOMMENDATIONS

➤ **1 CREATE A PUBLIC RELATIONS EFFORT TO PROMOTE LOCAL FOOD PRODUCTION AND CONSUMPTION.**

Build a campaign around the pride of our region, growing and feeding our own as a noble and worthy regional goal. In order to realize the benefits of localizing food production and processing, the Iron Range needs more growers and more value-added processing. The Rutabaga Project, a local food advocacy effort by the Iron Range Partnership for Sustainability and the Arrowhead Economic Opportunity Agency has initiated this effort on a small scale. Iron Range Grown has also effectively promoted this focus and it can be expanded exponentially.

➤ **2 FOCUS FUNDING ASSISTANCE FOR LOCAL FARM INVESTMENTS WHICH WILL INCREASE THEIR EFFICIENCY AND PRODUCTION CAPACITY.**

Based on our research, there is a significant market for locally grown food in the Agency's service area, yet interviews with area growers point to the need for basic upgrades to equipment such as post-harvest equipment like refrigeration or packing equipment which will increase capacity and efficiency of vegetable operators in the region. Assistance for farms could also include help in obtaining land for new growers such as tax forfeited land (and other lands) set aside through lease and purchase options or student loan forgiveness program for young folks committed to farming in our region. One model for focused investments on regional farms is a revolving loan fund call "Grow a Farmer Fund" administered by the Southern Initiative Foundation (<https://smi-foundation.org/news-events/newsroom/blog-archives/grow-a-farmer-fund.html>).

➤ **3 RESEARCH PROCESSING AND DISTRIBUTION MODELS FOR THE REGION.**

One clear finding of the research is the need to build local processing capability (value-added products) to fill the food needs of the region and efficiently move food products throughout the region. A reasonable next step would be to identify current production clusters and logical distribution maps and scenarios to efficiently move products from farm to market. Part of this work would include buildout scenarios for processing and cost estimates to greatly increase the potential of the localization of the foods and the viability of such enterprises. Ideally any type of organizational models researched would focus on how best to keep the food dollar local and to work to increase the farmer's share of that food dollar.

➤ **4 SUPPORT EDUCATION AND TECHNICAL ASSISTANCE FOR LOCAL FARM OPERATIONS.**

Two primary issues for existing and potential operations in the Agency's service area include (1) soil building and management and (2) business planning and development. The generally thin soils of the region need soil building efforts to create the high-fertility necessary for high value food products. In some of our farm fields we find poorly managed and depleted soils. Regenerating and amending this soil naturally holds enormous potential for increasing our capacity. To accomplish this, the sponsorship of educational programming about farm soil-building would be of great assistance. Likewise, each individual farm operation would greatly benefit from one-on-one technical assistance on their farm finances. Based on our interviews, those who are currently direct marketing are interested in expanding their operations, and offering them farm business planning assistance will help them identify the necessary next steps in terms of investments and efficiently marketing their products. Direct outreach to farms in the region and sponsoring the cost of participation in farm financial analysis and counseling through the U of M Extension's farm business management program would help to build the base of growers in the region.



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