Upper Peninsula Light Produce Processing Facility

PHASE 1 RESEARCH FINDINGS SUMMARY

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PHASE 1 RESEARCH CONTEXT

This phase of work was executed as part of a two-phase process to determine the supply and demand for, and operational needs of, a light produce processing facility in Michigan's Upper Peninsula. What follows is a mid-point memorandum of research findings to-date and of recommended processing approaches based on the information gathered so far. Insofar as the overall two-phase project is still under way, findings and recommendations herein are presented conditionally. More research is needed to confirm and elaborate our findings, and to determine the precise complexities, needs, and costs of operating a light produce processing facility. Phase 2 of this project will seek to do just that and deliver a processing facility plan that is robust, sustainable, and of significant value to the farmers of the Upper Peninsula.

PHASE 1 RESEARCH FINDINGS SUMMARY

The foundations of the Upper Peninsula light produce processing project may lie in these strengths found in abundance in the UP: Potatoes, affordable and available space, regional identity, and entrepreneurship.

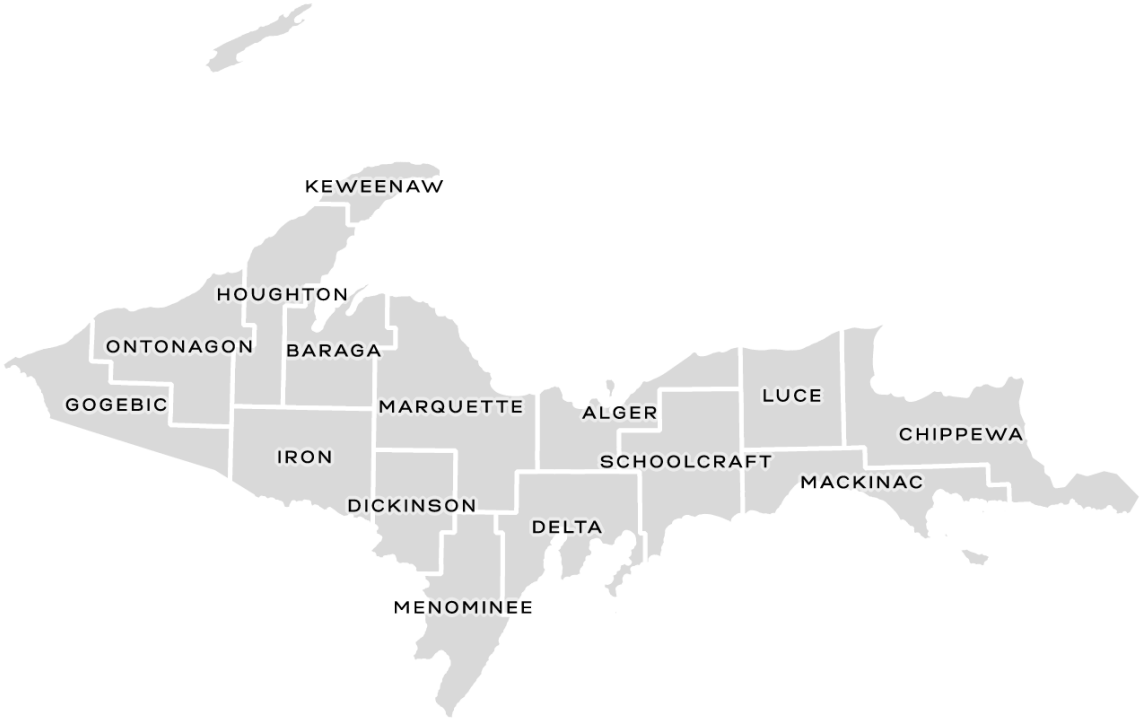
Guiding questions going forward may relate less to what crops from the region are appropriate for processing–other than potatoes, which are a clear possibility–but which investments and services will spark entrepreneurial activity in local fruit and vegetable production.

Developing a facility revenue model that is appropriately scaled, adaptable, and financially self-sustaining will be the core challenge as this project continues.

Specialty grain production and processing are of interest, but need to be explored in more depth as the processes involved are distinct from commercial kitchen and produce processing, and may require a separate facility.

UPPER PENINSULA LIGHT PRODUCE PROCESSING

USDA 2012 CENSUS OF AGRICULTURE: UP HIGHLIGHTS



TOPLINE THEMES

- Approximately 2300 acres are used to grow vegetables across the UP.
- Potato acreage accounts for about 85% of vegetable acreage in the UP.
- Iron, Delta, and Dickinson are the top three counties in vegetable sales.
- Only a very small number of acres are used to grow vegetable crops for processing (mostly potatoes).
- Fruit accounts for a small percentage of total crop sales in the UP overall.
- Oats, barley, wheat, and dry edible beans (excluding limas) account for over 1000 acres of production each.
- Delta and Menominee counties lead in barley sales.
- Mackinac and Delta counties lead in wheat sales.

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UPPER PENINSULA LIGHT PRODUCE PROCESSING

USDA 2012 CENSUS: TOP CROP ACREAGE & OPERATIONS

Crop (subtypes sorted by estimated acreage)	Known Min. Acreage	Estimated Acreage	# Operations
Vegetable Crops			
Vegetable Totals, In The Open	**2229**	**2355**	**162**
Vegetable Totals, In The Open, Processing	9	13	27
Potatoes	1854	1997	98
Pumpkins	141	173	75
Sweet Corn	35	44	58
Tomatoes, In The Open	20	23	52
Beans, Snap	13	17	47
Potatoes, Processing	4	11	17
Squash	5	10	22
Peppers, Bell	6	10	21
Cucumbers	1	5	14
Lettuce	1	5	14
Peppers, Chile	3	5	25
Carrots	2	4	17
Garlic	1	4	11
Cabbage, Head	1	3	15
Onions, Dry	1	2	11
Peas, Chinese (Sugar & Snow)	0	negligible	12

Crop (subtypes sorted by estimated acreage)	Known Min. Acreage	Estimated Acreage	# Operations
Selected Field Crops			
Oats	7303	7337	217
Barley	4898	5138	107
Wheat	1729	2113	44
Beans, Dry Edible (Excl. Lima)	1228	1535	10
Rye	298	550	24
Fruit Crops			
Non-Citrus Totals, (Excl Berries)	149	246	99
Apples	155	217	91
Berry Totals	139	156	83
Strawberries	28	75	32
Raspberries	21	28	42
Blueberries, Tame	16	25	23
Blueberries, Wild	8	24	12
Blackberries, Dewberries & Marionberries	12	16	19
Cherries, Tart	0	negligible	10
Grapes	0	negligible	11
Pears	0	negligible	11

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FARMER SURVEY: TOPLINE THEMES

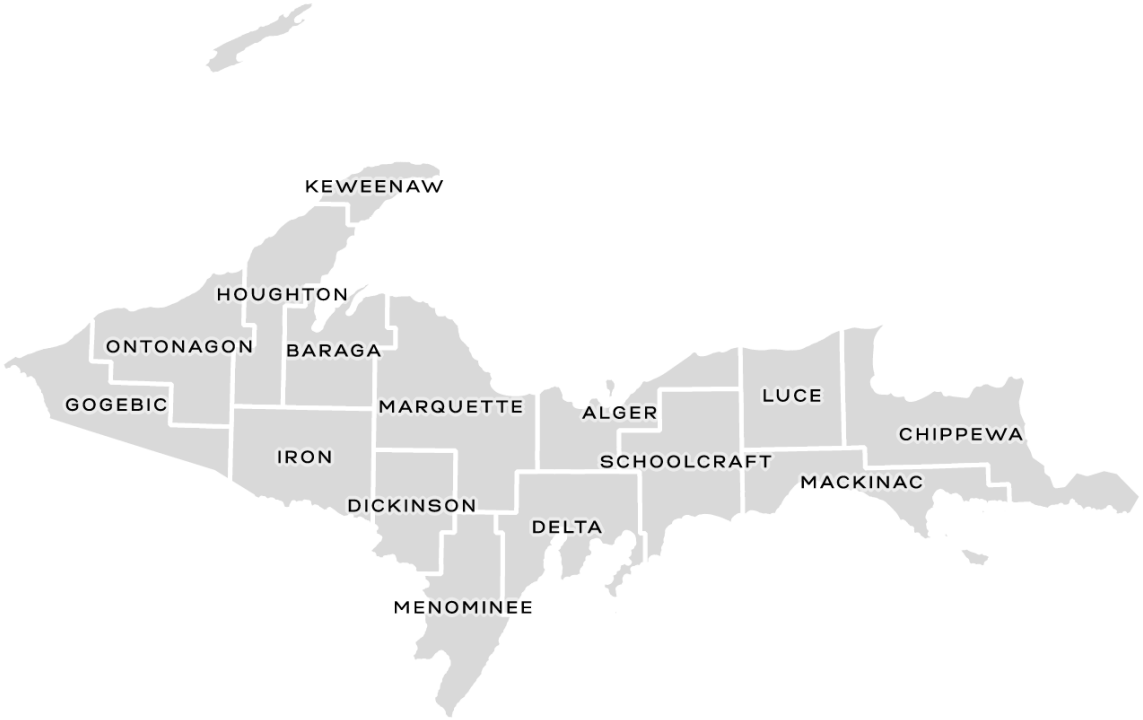
Overall, there is cautious enthusiasm around this light produce processing project from respondents.

The total number of survey responses was not high and of those many did not answer all questions, so results should not necessarily be viewed as conclusive.

The typical farm reflected in survey responses – small, diversified in vegetables, selling mostly at farmer's markets and farm stands, centered around Chippewa county – is somewhat different from the agricultural picture provided by the 2012 USDA Ag Census.

The survey probably under-represents the highest production crops reflected in the 2012 USDA Ag Census – potatoes, oats, barley, wheat, and dry beans –because respondent farms skewed towards small and diversified, rather than towards larger commodity farmers.

FARMER SURVEY: WHO RESPONDED



RESPONSE POOL

- 38 visitors to survey, 36 eligible
- Number of responses by question ranged from 22 to 27
- Strongest representation from Chippewa County (16 responses)
- Other represented counties: Alger (5), Marquette (4), Delta and Mackinac (3), Houghton (2)
- One each from Baraga, Gogebic, Menominee, Ontonagon

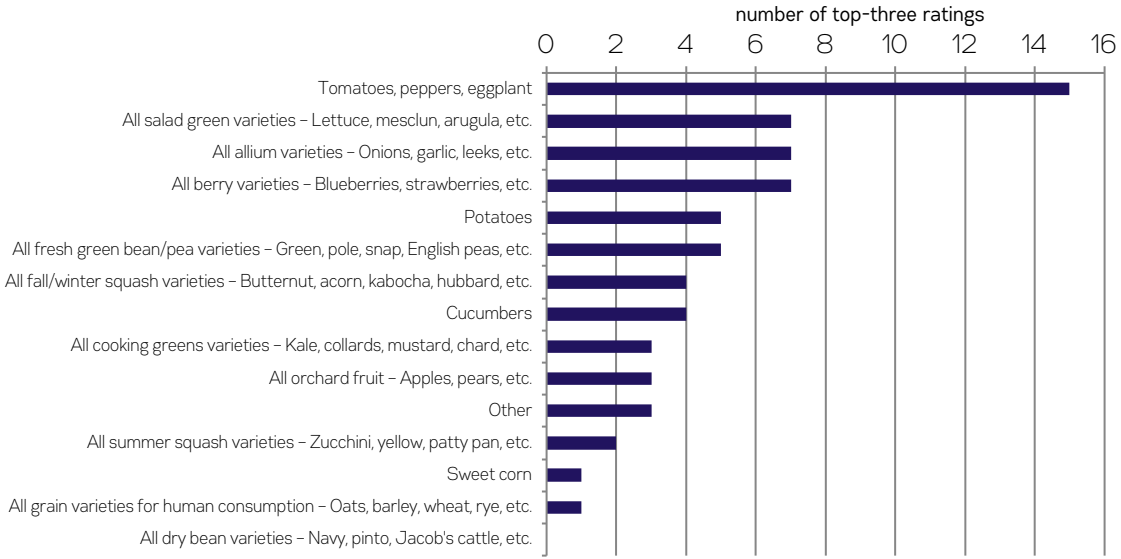
FARMER SURVEY: FARM SIZE AND LAND USE (IN ACRES)

Acreage Type	Average	Max
Total farm acreage	56	290
Vegetables (incl. sweet corn)	8	75
Fruits	5	50
Grains (human consumption)	10	50
Legumes (human consumption)	6	25
Grain or legume (animal feed)	10	30
Fallow acreage	33	200
Hay	32	120
Corn and/or soy for animal feed	20	100
Leased out	13	60
Grazing	30	100
Forested	41	100

ANALYSIS

- Top 6 acreage uses among responding farms were for uses aside from human food production (in order): Forested, Fallow, Hay, Grazing, Animal Feed, and Leased.
- Bottom 4 acreage uses among responding farms were for human food production (in order): Grains, Vegetables, Legumes, and Fruits.
- 62% of respondents have some production in hoop houses, greenhouses, high tunnels or small fields.

FARMER SURVEY: TOP CROPS IN CURRENT PRODUCTION



Top crops by volume (number of top three ratings):

- Tomatoes, peppers, eggplant (15)
- All salad green varieties – Lettuce, mesclun, arugula, etc. (7)
- All allium varieties – Onions, garlic, leeks, etc. (7)
- All berry varieties – Blueberries, strawberries, etc. (7)

ANALYSIS

- The results here show in relative numbers that many small farmers are harvesting tomatoes, salad greens, allium varieties and berry varieties, rather than the absolute volume of each crop in the UP.
- These results approximately correspond to the USDA Ag Census data on acres cultivated and number of operations. Lower value commodity crops like potatoes, grains, and beans are grown by fewer farmers in larger volumes (and therefore score lower on average in this question). Higher value market crops like tomatoes, salad greens, and berries, are grown by more farmers in lower volumes (and therefore score higher on average in this question).
- This chart does not provide adequate information to make conclusions about the availability of these crops for processing, since the crops need to be available in some kind of surplus, beyond what can be sold fresh through regular channels, in order to be available for light processing.

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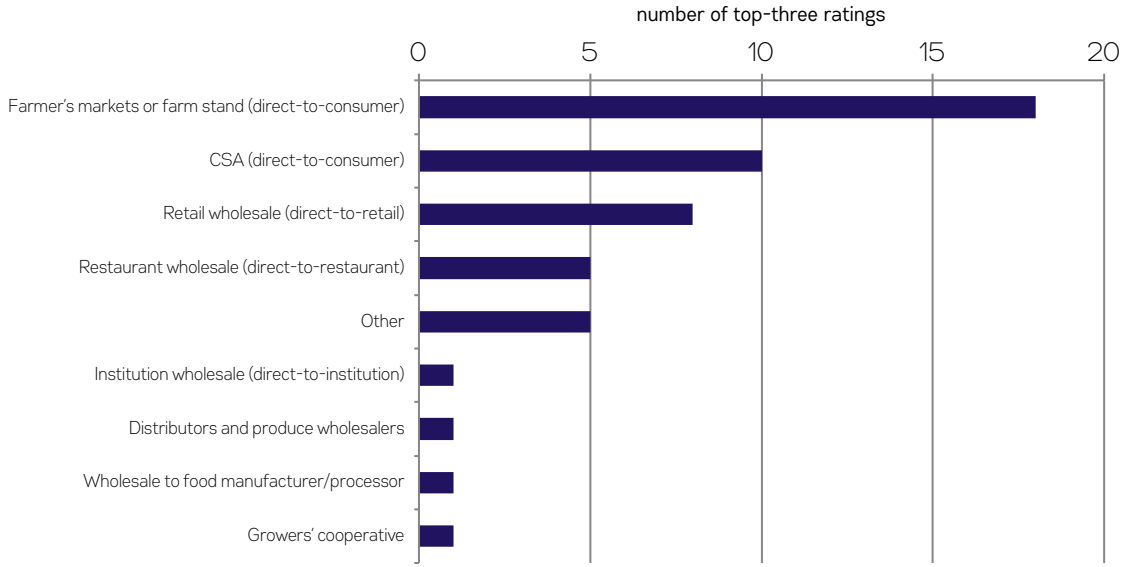
FARMER SURVEY: MARKETS



Top markets by revenue (number of top-three ratings)

- Farmer's markets or farm stand (direct-to-consumer) (18)
- Community Supported Agriculture (direct-to-consumer) (10)
- Retail wholesale (direct-to-retail) (8)

ANALYSIS

- Farmer's markets and farm stands earned first place in this question with nearly double the rating of the next response (Community Supported Agriculture or CSAs). These results likely reflect a pool of respondents with small farms, low acres in vegetable and fruit production, and diversified crops.
- Direct-to-retail and direct-to-restaurant sales came in 3rd and 4th place, respectively. This suggests farmers more often managing their own wholesale relationships to local buyers, rather than wholesaling to distributors, produce wholesalers, and processors.

FARMER SURVEY: CURRENT PROCESSING

18% **currently sell** processed or value-added products.

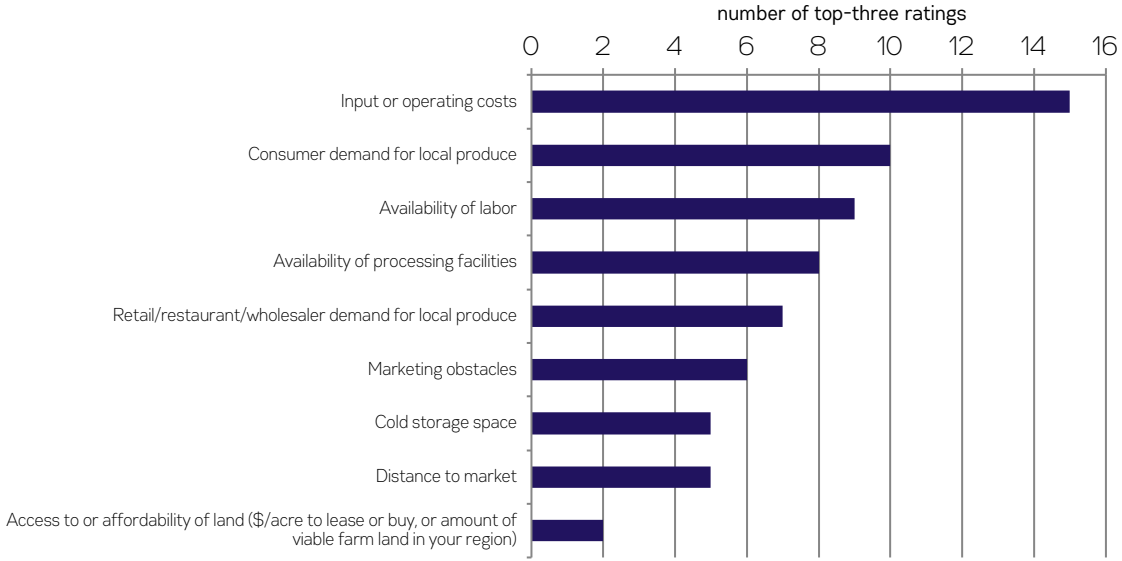
13% **have access** to other light processing facilities (e.g. restaurant facility)

18% have light processing infrastructure **on their farm**, primarily wash-and-pack lines.

ANALYSIS

- Based on the responses to the question on slide 10„ it is *probable* that the majority of the "yes" responses to the first and second question here are producing jams and baked goods under Michigan's cottage laws, since the majority of farms are selling through farmer's markets and farm stands.
- In both the survey and farmer interviews (mostly potato growers), wash-and-pack lines seem to be the most common processing infrastructure that farms own. It is *possible* that wash-and-pack lines are too basic a feature of pre-farm-gate harvesting to consider as a needed value-add process for the UP light processing facility.

FARMER SURVEY: BARRIERS TO EXPANSION



Top barriers to expansion (number of top three ratings)

- Input or operating costs (15)
- Consumer demand for local produce (10)
- Availability of labor (9)
- Availability of processing facilities (8)

ANALYSIS

- This question put the availability of processing facilities in 4th place (upper-middle range) as a barrier to production expansion, with input/operating costs in strong 1st place.
- Access to or affordability of land came in distant last place as a barrier, which is hopeful for the future production expansion of particular crops.

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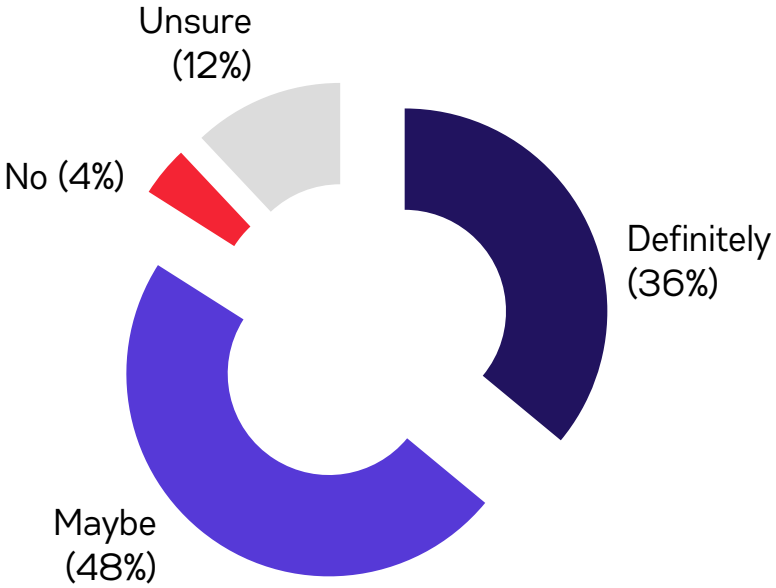
FARMER SURVEY: INTEREST IN PROCESSING FACILITY

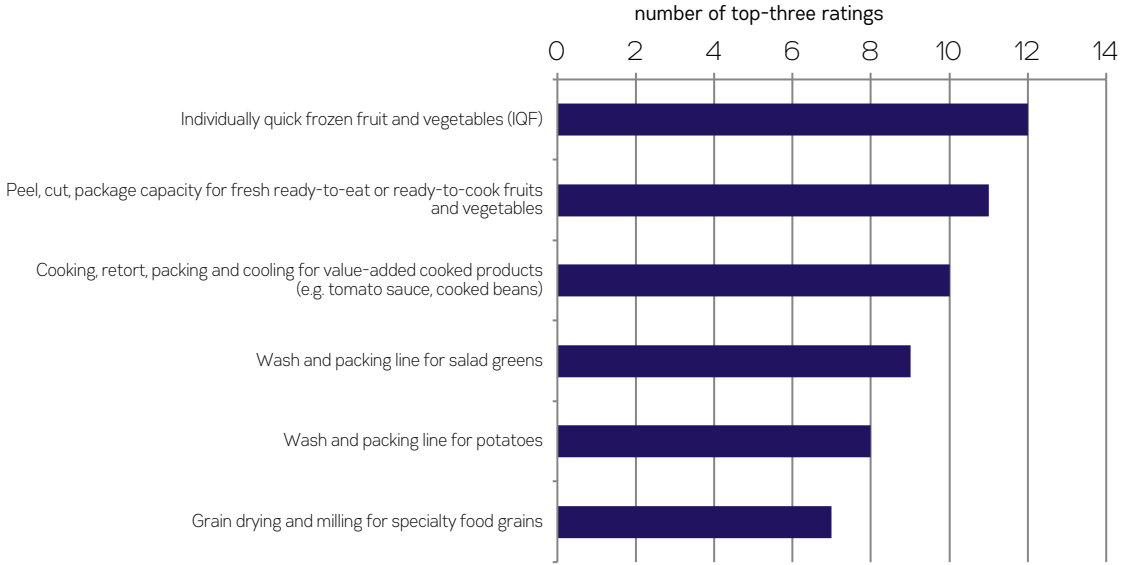
Do you think a light processing facility for vegetables, fruit, grain, and/or legumes would be useful for farmers in the UP?



ANALYSIS

- Through prior work in consumer surveys, we know that "Definitely" and "Maybe" can both be thought of as "yes" for survey assessment purposes (strong yes and qualified yes). We can therefore say that 84% of respondents agree on some level with the potential value of a processing facility located in the UP.

FARMER SURVEY: PROCESSING SERVICES INTEREST



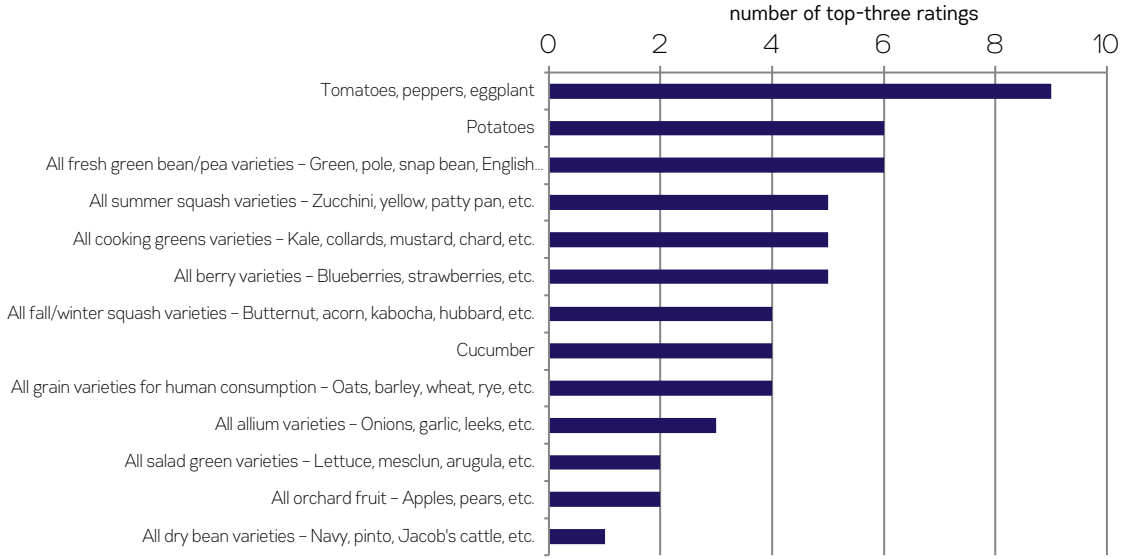
Top features and services of interest (number of top-three ratings)

- Individually quick frozen (IQF) fruits and vegetables (12)
- Peel, cut, and package capacity (11)
- Cooking, retort, packing and cooling (10)

ANALYSIS

- The top three respondent choices in this question form the core business of a processing facility such as observed at Western Massachusetts Food Processing Center (WMFPC, see slides 23-24): hot pack line for cooked products (not retort, but appropriate to small-scale production), peel-cut-package capacity for ready-to-cook products, and IQF capacity for fruits and vegetables.
- Wash/pack line for potatoes scored low in this question. With respect to potatoes, this is probably due to the fact that most growers typically own wash/pack line equipment already, as suggested in slide 10.
- Grain drying/milling also scored low in this question. This is possibly because farmers are not growing specialty grains for human consumption very much, and instead mostly selling into commodity grain markets, or growing for on-farm use, or plowing under for soil amendment.

FARMER SURVEY: CROP PROCESSING INTEREST



Top crops of interest for processing (number of top-three ratings)

- Tomatoes, peppers, eggplant (9)
- Potatoes (6)
- Fresh green bean/pea varieties (6)
- Summer squash, cooking greens, berries (5)

ANALYSIS

- Tomatoes, peppers and eggplant earned first place in this question. These are likely candidates for small-scale, hot-pack processing by food entrepreneurs making sauces, condiments, etc. in an effort to extend the season, add value, and manage surplus. Tomatoes and eggplant are probably not well suited to IQF processing, though peppers are so long as volumes are appropriate (see WMFPC slides 22-23 for discussion of IQF volumes).
- Potatoes were tied for second place, reflecting their abundance in the UP, despite placing only fifth among growers' top three crops. Potatoes would be suited for IQF processing (e.g. blanched and frozen for home fries) and other more complex preparations (e.g. hash browns, shredded, mashed).
- Green beans and summer squash varieties are probably best suited to various forms of acidified processing like pickling and relishes. In sufficient quantities, peas may be a candidate for IQF processing.

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FARMER SURVEY: PROCESSING INTEREST

Crops with three or more farmers expressing interest in a medium or large (50-100+%) scaling up of production for a processing facility (out of 22 of respondents):

- All fresh green bean/pea varieties (5)
- Tomatoes, peppers, eggplant (4)
- All salad green varieties – Lettuce, mesclun, arugula, etc. (4)
- Potatoes (3)
- Cucumbers (3)

ANALYSIS

- The responses to this question were cautious across the board, which is logical considering the careful risk-management required to farm successfully. No single crop group seems likely be scaled up by a significant number of farmers at the outset of this project at least.
- Green beans and peas, salad greens, summer vegetables such as tomatoes and cucumbers, and potatoes were the crops with the greatest farmer interest in significant production growth with the availability of a processing facility.
- Due to the inconclusive nature of this data, and the potential for minds to change, it seems prudent to design the facility around possible processes and viable revenue streams as much as it does around specific crops.

FARMER SURVEY: RELATIONSHIP TO PROCESSING

63% would be willing to pay for **fee-for-service** light processing.

83% would be interested in **selling product** to a light processing facility operator.

ANALYSIS

- These results correspond with our qualitative findings in interviews: *more* respondents are interested in selling produce to a third-party processor and not maintain ownership of the finished, value-added product, whereas *fewer* are interested in paying for fee-for-service processing. However, fee-for-service processing is still of interest to a number of farmers.
- This suggests the possibility of hosting a hybrid of services such as at WMFPC: a portion of capacity allocated to fee-for-service processing, and another portion of capacity dedicated to a third-party brand or proprietary line of products.

FARMER SURVEY: PROCESSING INTEREST

41% of farmers believe a light processing facility would **definitely be a factor** in increasing total acres under cultivation and total revenue at their farms.

27% of farmers believe a light processing facility would **somewhat be a factor** in increasing total acres under cultivation and total revenue at their farms.

ANALYSIS

- As in slide 12, we can interpret these responses to mean that over two-thirds of respondents believe that a light processing facility would be a factor, *to one degree or another*, in increasing total acres under cultivation and total revenue. This is a fairly optimistic outlook.

INTERVIEWS: PERSPECTIVES FROM UP FARMERS

Production volume on *most* vegetable and fruit crops is limited due to farm sizes, labor availability, and growing season, resulting in a limited supply for value-added processing activities.

Most of that vegetable and fruit production seems to find outlets in farmers markets, farm stands, direct retail, you-pick, community supported agriculture, etc., meaning farmers have low incentive to hold and accumulate product for value-added processing.

Potato production is one of the few UP vegetable crops *currently* produced at sufficient volumes for significant light processing activities. Available volume in potato "seconds" is sizable and could be a strong candidate for value-added products.

Interest in developing farm-owned value-added product brands is limited so far. Interest from farms is more in supplying third-party manufacturers, partly for business complexity/bandwidth issues, partly for food safety liability concerns.

Farmers perceive the significant obstacles to institutional purchasing of local foods put up by Group Purchasing Organizations (GPOs) and Food Service Management Companies (FSMCs). This reduces interest in working within that system.

EXAMPLES

- One potato farmer interviewed produces approximately **4 million pounds** of table potatoes annually, of which approx. **500K pounds per year** are sent to a lower Michigan processor. There is interest in sending that amount to a UP processing facility instead, as trucking logistics are reportedly complicated and expensive to arrange in the UP.

- One diversified vegetable and fruit farm interviewed reported limited interest in a light processing facility's services, due to a soon-to-be built on-farm commercial kitchen. Nevertheless, this farm did express interest in more capital-intensive services like IQF processing and a retort for canning.

INTERVIEWS: PERSPECTIVES FROM UP BUYERS

Purchasing volumes at major UP institutions are so large relative to UP vegetable and fruit production, could absorb all of it. Conscientious chefs recognize this disconnect.

Most institutional buyers are highly restricted in purchasing discretion outside of GPO and prime vendor relationships. Distributing products via approved regional distributors (Russ Davis, Rheinhart) may create higher chance of success.

Public school system bid process is onerous for local farmers, even a small (<$3500/year) purchases, as are insurance and audit compliance requirements. Further research is required to identify receptive school systems

Successes in local meat and eggs may be a template for future successes with fruits and vegetables in the UP. Further research should be done to identify the relevant dynamics, however preliminarily this likely relates partly to availability of year-round supply.

There is buyer interest in ready-to-cook and ready-to-eat products like various potato products (mashed, home fries, hash browns), fermented products (sauerkraut, kimchee), hot sauces, and roasting/mirepoix/pasty root vegetable mixes.

EXAMPLES

- One secondary institution interviewed purchases high volumes of broccoli florets, cut cantaloupe, and cut watermelon. Much of this is probably produced by Markon Foods, a subsidiary of Rheinhart Food Service with large-scale processing capacity. The UP's facility should avoid processing activities and relationships which will result in it competing with Markon.

- One lower MI-based value added processor does not sell IQF/RTE potatoes due to reported low price elasticity among consumers for potato products. They estimate having to process ~1 million pounds of potatoes annually to justify the processing cost. The UP, however, may have this kind of volume readily available for processing.

INTERVIEWS: PERSPECTIVES FROM UP EXPERTS

Farming operations in the UP are generally limited and resistant to change. Growth is likely to come from new, outside, younger operators.

Food safety certification, audit compliance, and insurance requirements are seen as major obstacles for many local farmers transacting with GPOs and large food processors.

Customer demand for lightly processed foods is increasing steadily, so market opportunity is seen by most stakeholders in the UP for fresh cut fruits and vegetables, IQF produce, ready-to-eat foods, etc.

UP has potential for significant specialty grain production – e.g. hard red wheat, durum, barley, emmer – and to supply artisan milling and malting operations. However, this would require outreach to farmers and development of the market to encourage a shift.

Distribution and storage infrastructure are major limiting factors in the UP, even for large producers, due to distance, weather, and low density of food cluster actors.

EXAMPLES

- One enterprise interviewed is producing artisanal, fresh-ground flours from hard red wheat and emmer grown in lower Michigan, in a region that extension agents advised would not have suitable soils. The company's results, however, seem to be excellent as measured by wheat protein content and yields, owing in part to the well-draining soils and changing climate. This company's experience is that the demand from chefs and specialty bakers for Michigan-raised and -milled flours is exploding.

WMFPC TOUR: KEY FINDINGS

IQF PROCESSING

COMMERICAL KITCHEN

ANCHOR TENANT

Three main revenue streams for WMFPC:

- **IQF Processing** – mostly for proprietary Pioneer Valley Vegetable Venture (PVVV) line, some on fee-for-service basis for farmers.
- **Commercial Kitchen** – mostly for kitchen and staff rental to small tenant businesses doing acidified processing hot-pack, some for PVVV sauce production.
- **Anchor Tenant** – Artisan Beverage Cooperative occupies a dedicated ~2000 sq. ft. space (additional to WMFPC's 6000 sq.ft.)

ANALYSIS

- Their IQF unit is Martin/Baron tunnel freezer with 7-foot freezing chamber. Not many units appear to be much smaller. IQF line can process 2500-3000 pounds of product per 8 hour shift. Minimum batch size to break even turning the machine on is around 500 pounds. Cleaning, cutting, blanching, icing, and draining of product is almost entirely manual at present and represents the bottleneck on the operation. This may be automated in the future. Product is boxed in 25 pound wholesale cases manually, but may be packed into retail sizes using automated equipment in the future.

- The commercial kitchen rents for $45/hr for space and equipment. Processing center staff are rented to tenants at $20/hr. These rates reflect the cost of living, labor, real eastate, and services in central MA. Typical batch sizes for food businesses are 100-200 gallons based on the equipment size. This is considered the most profitable of WMFPC's activities, as it's quite scalable and doesn't tie cash up in ingredients and inventory.

- The anchor tenant was described as crucial to the viability of WMFPC's model, as it provides a baseline of rental income with nearly no management or effort. Their anchor tenant is the result of a merger between two commercial kitchen tenants who were ready for a larger space.

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PROCESSOR PROFILE: WESTERN MASS. FOOD PROCESSING CENTER

WMFPC total revenues in FY2017 were $663K. Earned revenue from processing and rental activities represented $286K of that total. The balance of revenue ($377K) came from grants and other fiscal sponsors.

WMFPC capital investment to-date is $2.1M, since its founding in 2001. Space is comprised 2000 sq.ft. of commercial kitchen (including IQF), 2000 sq.ft. of cold/freezer storage, and 2000 sq.ft. of ambient dry storage.

The facility processed ~90K pounds of product in FY2017, including 50K pounds of IQF fruits and vegetables, excluding any product processed by tenant food businesses.

Directors estimate that the facility could accommodate approximately 50% more earned revenue activities with no further changes to the existing space and equipment, or total earned revenue target of ~$430-450K.

Their goal in 2018 is to process 150K pounds of IQF fruits and vegetables alone, not counting other Pioneer Valley Vegetable Venture (PVVV) products.

ANALYSIS

- WMFPC has been in existence for 16 years and is still over 50% funded by grants and other fiscal sponsors.. In phase 2, we will look at other light processors to compare WMFPC against other revenue and operating models. It will be crucial for the UP stakeholders to assess to what degree the facility at KI Sawyer can be grant-supported for the first 5 years, if that proves to be required.

- Anecdotally, small processors of most kinds (meat, produce, other co-packing) struggle balancing start-up investment size and adequate capacity for scaling up. In the next phase we will look at appropriate scale for the UP to minimize growing pains associated with being undersized.

- WMFPC does not process any fresh cut fruits or vegetables at present, because of the lack of a kill-step in fresh cut processing as compared with all other processing they do. This creates a risk of cross-contamination and would require time/space separation with other processing.

INTERVIEWS: UPFE & MARQUETTE FOOD COOP NEEDS & OPPORTUNITIES

Marquette Food Coop (MFC) sells and needs…

- Sells approx. $14K/year of fresh-cut produce (0.15%, growing 30% YoY)
- Sells approx. $940K/year from the prepared foods department
- Needs adequate space for production of fresh-cut produce
- Needs space for properly storing and managing purchased meat

UPFE needs to and could…

- Fledge from Marquette Food Coop (MFC) nest
- Produce fresh-cut produce for MFC
- Expand the UPFE online marketplace
- Develop a UPFE food brand
- Provide surplus cold storage to MFC and others

UPFE should avoid…

- Entering the distribution business
- Being perpetually grant-funded

UPFE & LIGHT PROCESSING: POSSIBLE REVENUE STREAMS

IQF PROCESSING

COMMERICAL KITCHEN

ANCHOR TENANT

SURPLUS COLD STORAGE

- **IQF Processing** – Equipment designed around potato and other root vegetable processing.
- **Commercial Kitchen** – Range of equipment for acidified process hot-packing by tenant entrepreneurs renting hourly.
- **Anchor Tenants** – One or more food entrepreneurs requiring dedicated space, benefiting from shared infrastructure (building fit-up, loading dock, cold storage, etc.)
- **Surplus Cold Storage** – Ample cold and freezer storage rentable by pallet for any UP food business.

ANALYSIS

This approach may accommodate a range of enterprise sizes and create a healthy and adaptable business ecosystem.

- Large Scale: Synthesizing information from interviews in this project, it is worth considering IQF processing capacity of 1 million pounds per year. Processing capacities far below that may result in poor utilization of facility assets, reduced interest from scaled-up UP potato growers, and a higher cost for end products.
- Mid Scale: Anchor tenants are those too large for regular commercial kitchen rentals, but not yet scaled up enough for their own real estate. This is a critical point in the business cycle for food entrepreneurs to find supports. The UP facility may nurture a few of those business at this stage and benefit from their tenancy.
- Small scale: The commercial kitchen and surplus cold storage are both geared towards small food entrepreneurs needing access to periodic production space and/or flexible cold storage space. These businesses have the most diverse needs but are usually in ample supply.

UP PROCESSING FACILITY OUTPUT: HYPOTHETICAL PROCESSED PRODUCTS

Product: Fresh cut vegetables

Source: MI produce (upper/lower)

Packaging: Retail containers (8-16oz)

Owner/Processor: UPFE brand

Customers: Marquette Coop, local retail food stores

Product: Yooper chips

Source: UP potatoes

Packaging: Retail bags (standard sizes)

Owner/Processor: Third party anchor tenant

Customers: Regional retail food stores

Product: IQF roasting & pasty mixes

Source: MI potatoes, root vegetables

Packaging: Retail 2# bag / Institutional 25# case

Owner/Processor: UPFE brand

Customers: MI restaurants & institutional food service

Product: Ready-to-cook frozen home fries

Source: UP potatoes

Packaging: Institutional 25# case

Owner/Processor: UPFE brand

Customers: School food service in MI & WI

Product: Hot sauces

Source: Regional peppers (seasonally sourced)

Packaging: Retail bottles

Owner/Processor: Tenant entrepreneur

Customers: Local specialty & food retail, regional partnerships

Product: Milled specialty flours

Source: UP & lower MI grains

Packaging: Food service bag (25#)

Owner/Processor: Third party anchor tenant

Customers: Restaurants, specialty bakers, specialty wholesalers

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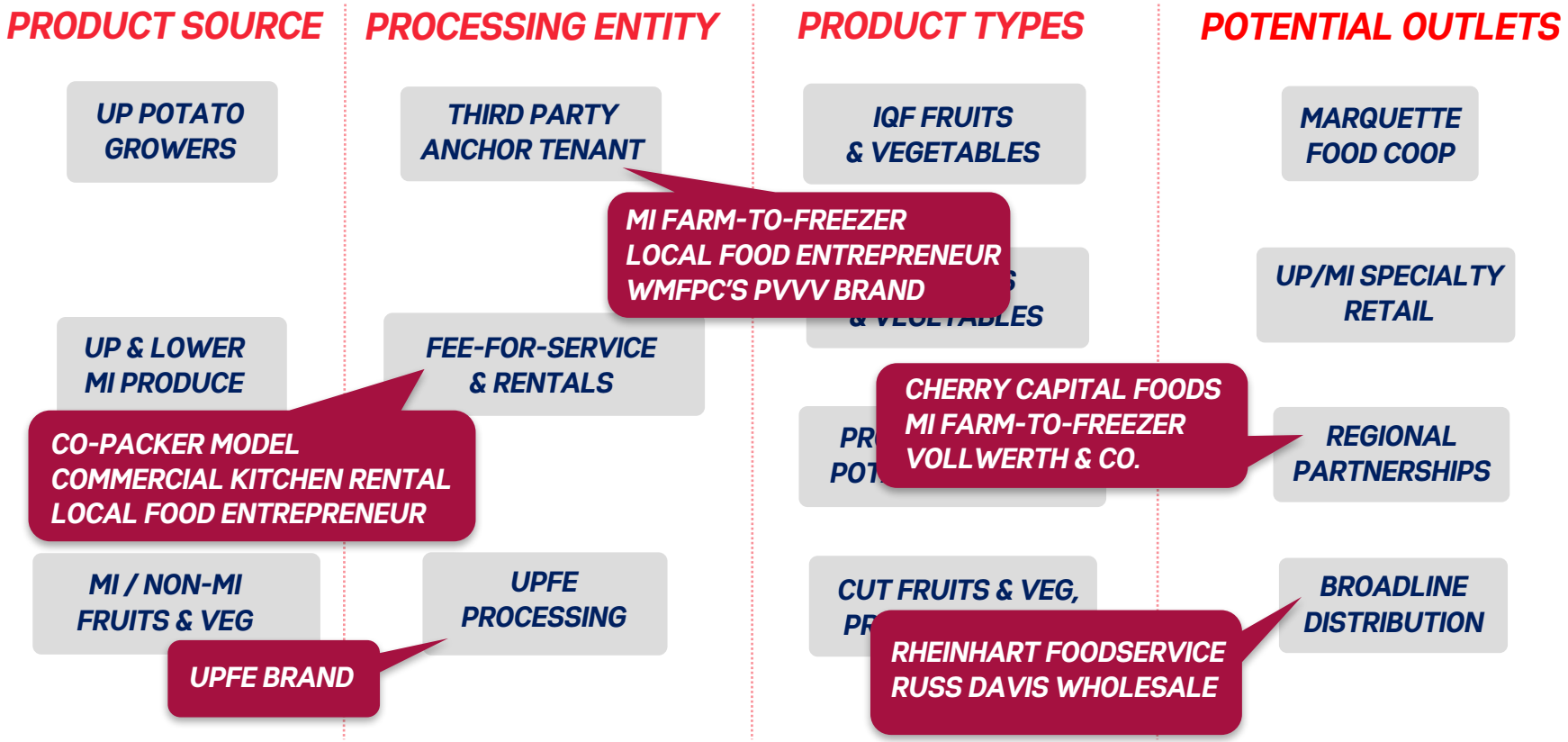
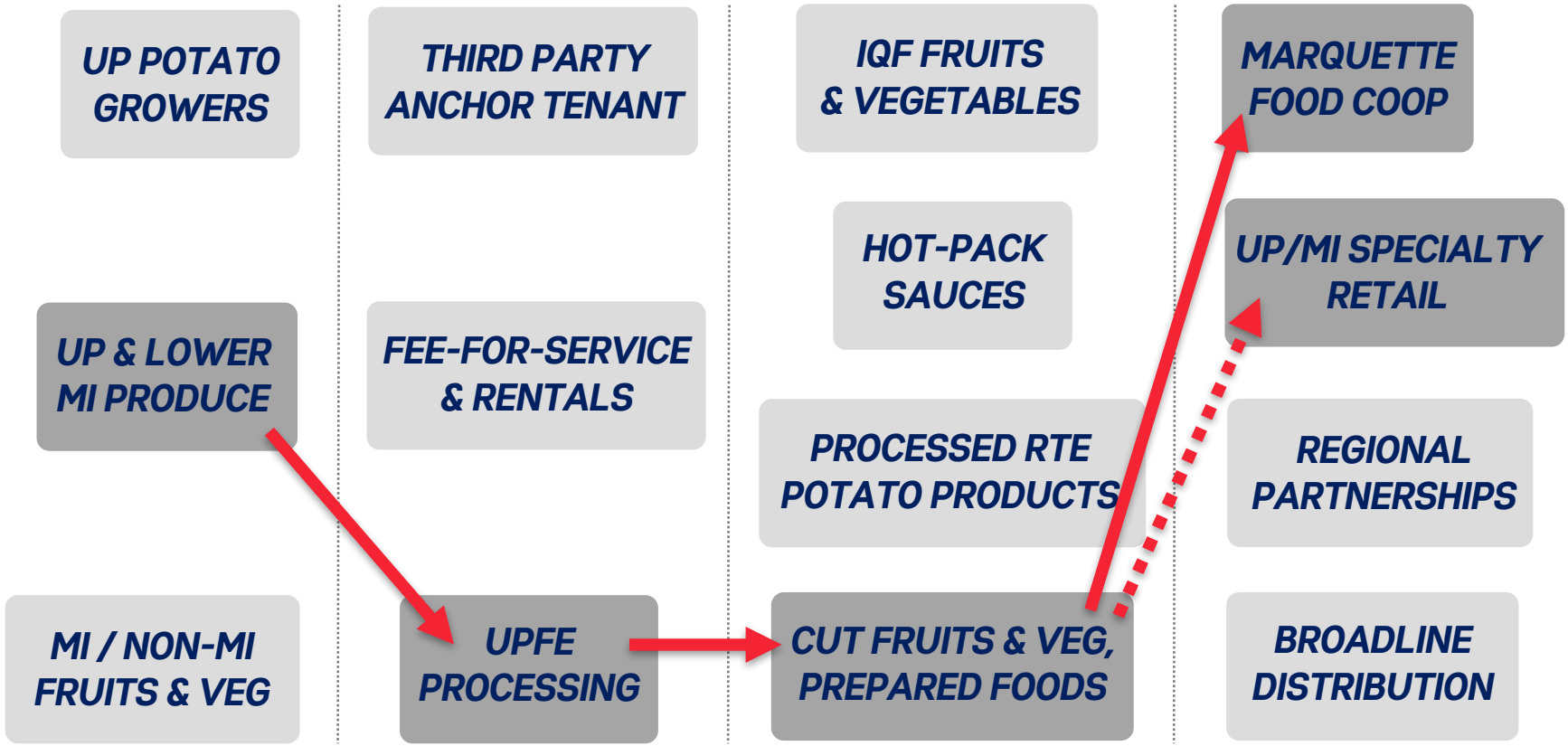
UPPER PENINSULA LIGHT PRODUCE PROCESSING

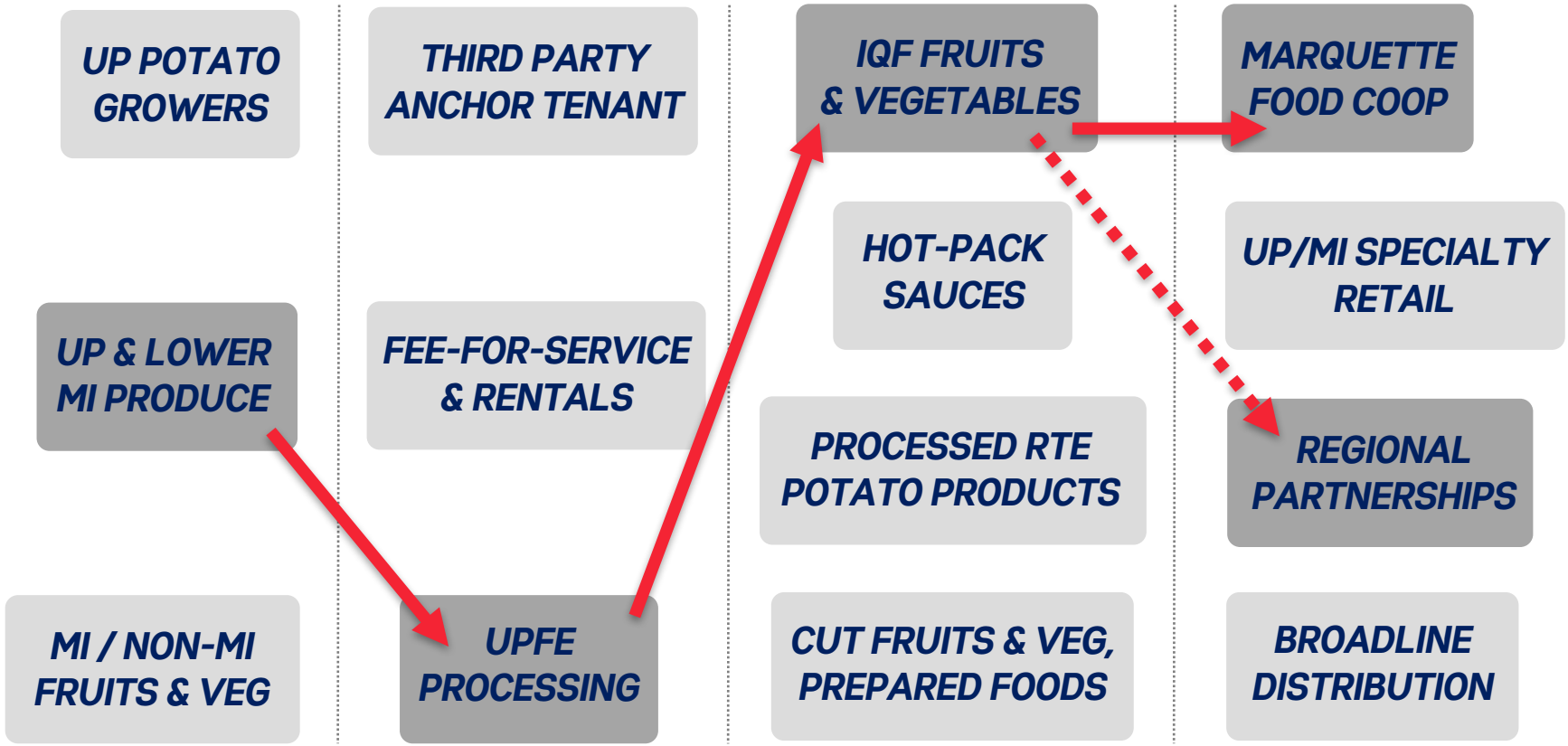
PROCESSING PATHWAYS KEY: *HYPOTHETICAL RELATIONSHIPS & BUBBLES OFFER EXAMPLES.*



POTENTIAL PROCESSING PATHWAYS – *LOW VOLUME PROCESSING FOR LOCAL USE EXAMPLE*

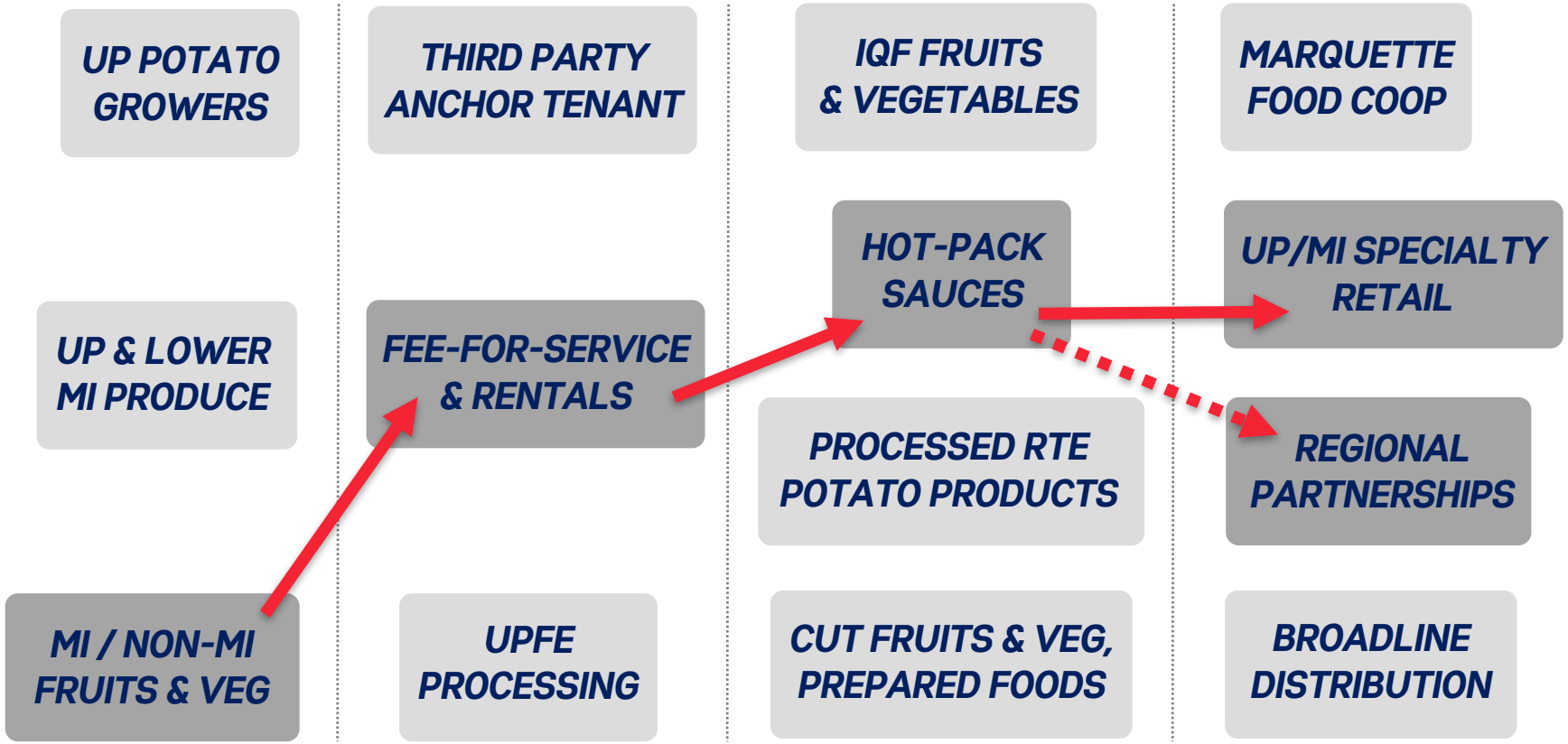


POTENTIAL PROCESSING PATHWAYS – *MEDIUM VOLUME LOCAL/STATE IQF EXAMPLE*



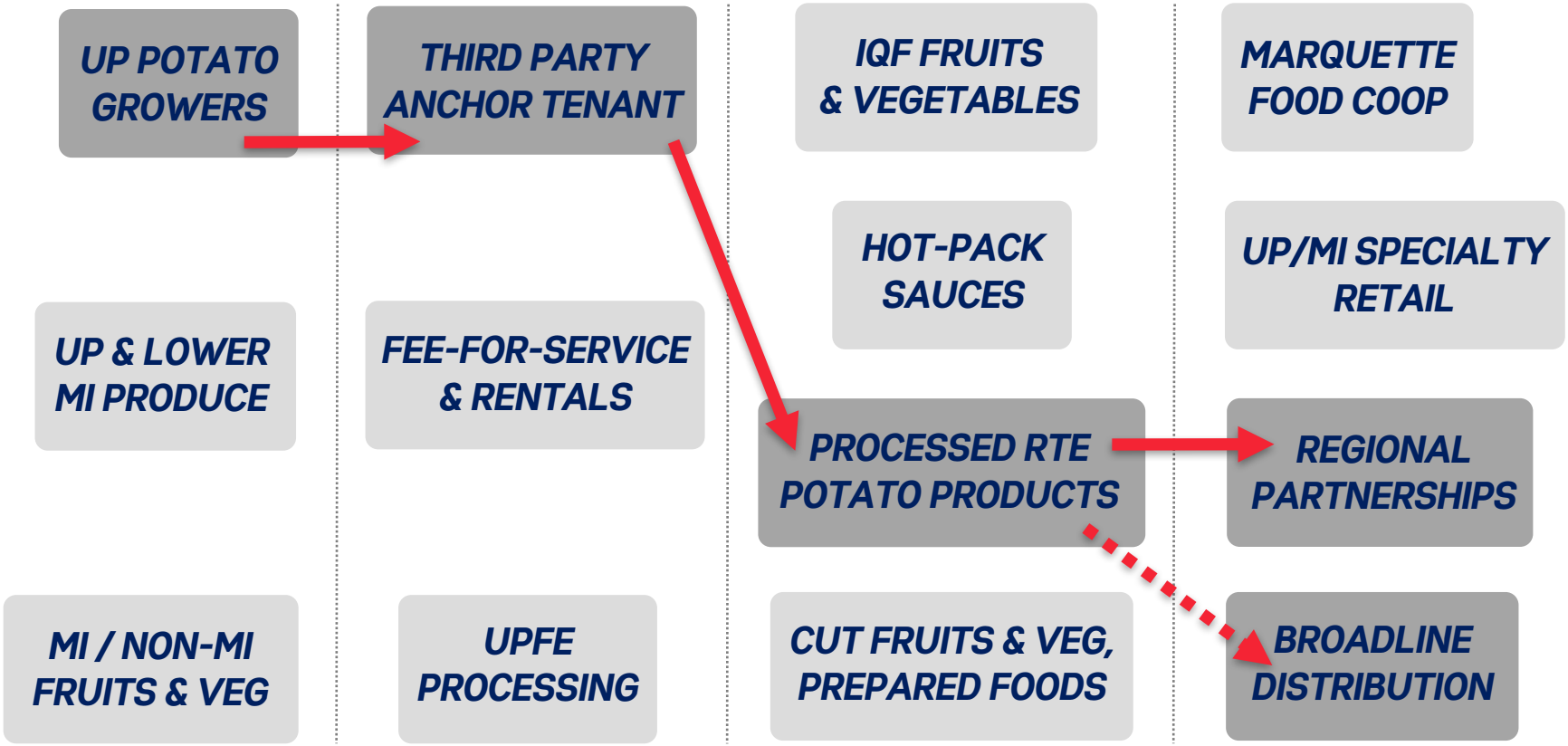
UPPER PENINSULA LIGHT PRODUCE PROCESSING

POTENTIAL PROCESSING PATHWAYS – *MEDIUM VOLUME LOCAL/STATE CO-PACKING EXAMPLE*



UPPER PENINSULA LIGHT PRODUCE PROCESSING

POTENTIAL PROCESSING PATHWAYS – *HIGH VOLUME REGIONAL PARTNERSHIPS EXAMPLE*



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