SPECIALTY MEAT PROCESSING AT REDWOOD ACRES FAIRGROUNDS

FEASIBILITY STUDY AND ANALYSIS

PREPARED BY GREENWAY PARTNERS FOR
ARCATA ECONOMIC DEVELOPMENT CORP.

SEPTEMBER 2016

Acknowledgements

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The efforts to gather and analyze the information for this study were supported from several sources. The primary source of funds was a grant from the USDA Agricultural Marketing Service Local Food Promotion Program. This grant was awarded to AEDC, a local community development financial institution serving several northern California counties. Additional funding was provided by a Community Grant to Friends of Redwood Acres (a non-profit organization that fundraises to support programs and activities at Redwood Acres) received from the Humboldt Area Foundation.

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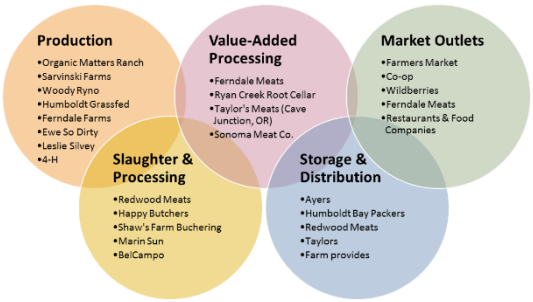
Executive Summary

Project Overview

This study set out to identify opportunities and constraints around establishing a full-service specialty meat processing facility housed at Redwood Acres Fairgrounds in Humboldt County, California. This study sought to clarify anecdotal evidence of "need" for local meat processing, to understand value chain services that support local meat producers and processing, and to identify influences on a capital-intensive, private sector development on a publicly-owned property.

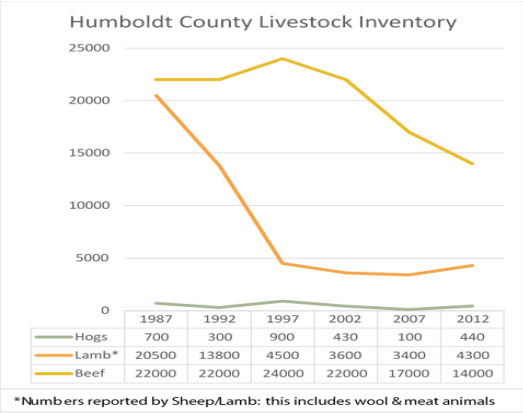
Study Approach



To identify a potentially feasible business model for specialty meat processing at Redwood Acres, the study gathered evidence from primary sources (stakeholders including local producers, processors, storage and distribution providers, and market outlets), as well as secondary sources (including resources available through the extensive national Niche Meat Processor Assistance Network and previous research on the local food system). Interviews, workshops, and site visits were conducted to obtain first-hand information. The study focused mainly on pork production, processing and value chain needs.

Market Overview

Very limited pork production occurs in the region, and roughly half of it stems from 4-H clubs who have a high demand for slaughter during a very short period. The remaining producers' needs are mostly met by the slaughter services provided by Redwood Meat Co. However, because no USDA-certified facility for curing, smoking, or making sausage exists in the County, farmers travel long distances to process their meat for market. Despite this travel, most farmers interviewed are also largely happy with their current processing arrangements.



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Hogs	700	300	900	430	100	440
Lamb*	20500	13800	4500	3600	3400	4300
Beef	22000	22000	24000	22000	17000	14000

*Numbers reported by Sheep/Lamb: this includes wool & meat animals

Processing is only one component of the value chain that limits farmers' potential to raise and sell meat to consumer markets. Production limits include small farm size, handling and land management

requirements of a well-managed pig operation, and weather. Processing is limited by slaughtering capacity, product specialization, and coordination between parties involved. Other value chain limitations include storage and distribution/transportation, skilled labor availability, high costs of waste disposal, and business development services and related coordination. These production and value chain factors are likely more limiting than processing-related factors at this time.

Redwood Acres Overview

Redwood Acres Fairgrounds (RAF) is a state District Agricultural Association; it's mission and mandate are to provide agricultural education, community events and recreation, as well as host an annual fair. In the wake of significant losses of funding from the California state budget, RAF has worked to become a self-sustaining operation. It subsists largely on rental revenues and is slowly increasing its monthly rental revenue as it develops spaces that are desirable for tenants. Much of its focus has been on establishing value-added food and natural products processing businesses, and RAF is becoming a *de facto* food incubator.

RAF has substantial limitations impacting its current and potential future developments. Its legal designation as a State entity limits its autonomy and its capacity to innovate and enable investment in its property and facilities. Its lack of capital reserves means that tenant improvement costs fall to the tenants to incur upfront. Nonetheless, RAF management continues to seek opportunities to enhance the facility and attract new tenants and business ventures. A series of planning efforts have been conducted to provide RAF with clarity around future developments and to improve community buy-in to these developments. For this study, a large planning workshop resulted in several design concepts that RAF could consider as it adds to or expands uses of the facility.

Business Model

Several business models were researched for this study, resulting in one recommended model that could be considered viable at RAF while also meeting other food system needs. The business model would build on that being developed by existing tenant, Ryan Creek Root Cellar, a very small niche meat processing operation. The model would expand operations to include specialty services such as butchery, aggregation, storage and distribution coordination. The business model is projected to be financially profitable within 5 years, although its ability to procure pork form local producers would require intentional collaboration between farmers and the business operator. The viability of the business model depends on additional support from RAF to enable more private investment and provide accommodating facilities and infrastructure.

Opportunities and Constraints

The key limitations facing an expanded local meat operation at Redwood Acres are related to both the overall market as well as RAF's site and organization. However, there is good alignment between the market and the site conditions that create several opportunities as well.

OPPORTUNITIES	CONSTRAINTS
• RAF facilities and management services offer increased access to cold storage, transportation and additional value-added processing operations • RAF site enables colocation of valuable services to reduce barriers and transaction costs • Increased local processing options could encourage more local pork production and sales • Facilitated connections between value chain stakeholders can amplify market opportunities • Coordination between producers and processors can even out demand fluctuations • Consumer education can be supported to increase demand for local meat • RAF facilities and position as a public entity can support economic development through food incubator operations by providing reduced rents, centralized services and developable space for businesses to expand • RAF could capture savings by contracting some management of infrastructure and operations to third party providers	• Low consumer demand for premium meat and low value parts (feet, etc.) • Low and fluctuating production limits expansion opportunity for processing services • Production conditions (wet climate, small farm size, natural/rotational methods, humane production) • Limited ancillary services: transport, cold storage, specialty processing, offal disposal • Regulations create hurdles and barriers that are challenging for small scale meat producers and processors to overcome or justify expense • RAF has limited funds for planning, facilities improvements, and development costs • Legal structure of RAF requires State involvement at many levels of decision-making and adherence to many public entity requirements • Deferred maintenance of RAF facilities and infrastructure create unknown conditions and costs • Conflicting uses of and community interests in RAF facilities must be addressed • RAF has limited access to financing and capital, and private investment opportunities are limited by the lack of private investment security

Recommended Next Steps

In order to make a new meat processing business more viable at RAF, this study recommends a wide range of actions that can be taken, both by Redwood Acres and by other supporters in the community. These include:

1. **Advocate** for local and state-level policy and regulatory changes to facilitate improved waste disposal and meat inspection opportunities.
2. **Enable partnerships and investment** by creating a facilities development plan and establishing long-term contracts with private entities to attract investments.
3. **Increase education** about local meat production and processing through events, educational programs, and promotional activities.
4. Enhance capacity to **coordinate value chain needs**, such as cold storage, transportation and business incubation services.

Definitions

Certified: refers to a meat product that has been formally evaluated by USDA's FSIS and the Agriculture Marketing Service to designate a meat product by class, grade, or other qualities (example: "Certified Angus Beef").

Custom Exempt: meat processing operation that performs slaughter and/or processing services that are not subject to USDA inspection requirements (but are subject to periodic, risk-based inspection by USDA and/or state authorities). Meat that is processed by a custom exempt processor cannot be sold and is intended exclusively for use by the animal's owner (or household members, non-paying guests or employees). A facility can concurrently provide services that are custom or retail exempt and state or federally inspected (except for a poultry processing facility).

Cut and wrap: one type of processing that breaks down chilled half/quarter carcasses into more marketable and valuable end sizes (primal, subprimal, or retail cuts) and packages the cuts (for example: vacuum-packed, boxed or "case-ready" retail packages).

Direct to consumer: a form of market sales that involves a producer selling a live animal directly to one or more household buyers (each buyer purchases a whole, half, or quarter of the animal). The buyers can place orders to have the animal cut or processed by a custom-exempt processor.

Direct market: a form of market sales that involves a producer selling meat directly to consumers (such as at a farmers' market) that has been slaughtered and processed in a USDA inspected facility.

Dry aged: condition or process ("dry aging") for meat (primarily used for beef) to hang in a temperature and humidity-controlled environment for extended periods in order to increase desirable qualities (tenderness, flavor, etc.).

Farm dressed: meat that has been slaughtered on-farm exclusively for use by the animal's producer (or household members, non-paying guests or employees).

Federal inspection: inspection of meat or poultry slaughter and processing operations by USDA inspector according to specific inspection rules and regulations. Federal inspection enables meat to be sold wholesale and retail as well as shipped across state lines.

Offal: inedible constituents of slaughtered animals that are separated from edible parts and disposed of through various streams: renderers and tanneries create marketable products from the waste; landfill disposal of offal is common in areas that lack adequate access to other disposal options.

Primals/Subprimals: primals refer to the cut of meat initially removed from slaughtered carcass (ex: rib, loin, flank); subprimals are smaller cuts made from primal cuts (ex: short rib, shoulder).

Processing: (also "processed") includes operations in which an animal is slaughtered and prepared for meat to be sold or consumed. Generally, processing includes the steps following slaughter: cutting, skinning, boning, canning, salting, curing, smoking, stuffing, rendering, or other manufacturing.

Rendering: process of disposing of inedible byproducts of meat carcasses and creating usable or valuable products and waste product that is considered safe to dispose. Rendering is a process of drying and separating fat from protein and bone and results in marketable products such as tallow, bone meal, and meat byproduct meal.

Retail exempt: meat processing operation that sells meat at its own retail storefront without daily inspection from USDA FSIS or equivalent state agency (but is subject to periodic, risk-based inspection by USDA and/or state authorities); limited wholesale of butchered fresh meat to institutional customers is allowed. A facility can concurrently provide services that are custom or retail exempt and state or federally inspected (except for a poultry processing facility).

Slaughter: the act and process of killing and cleaning livestock or poultry in preparation for processing and use as human food.

State inspection: inspection of meat or poultry slaughter and processing operations by a State's program that enforces requirements "at least equal to" those imposed under the federal law. State inspection enables product to be sold wholesale or retail. California does not have a qualifying state inspection program.

Value-added processing: additional processing of meat parts, often less marketable cuts and trimmings, which can include grinding, casing, smoking, cooking, drying, or curing to make sausage, ham, bacon, jerky, and other products including fixed-weight cuts for retail.

Wholesale: a form of market sales that involves a producer selling USDA-inspected meat to either a wholesale processor/distributor or to retail establishments and the buyer performs or arranges for the further processing.

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PROJECT OVERVIEW

Project Purpose and Objectives

This study set out to identify opportunities and constraints around establishing a full-service specialty meat processing facility housed at Redwood Acres Fairgrounds in Humboldt County, California. It sought to address three core problems:

1) replace the anecdotal perspectives that express a "need" for local meat processing facilities with validated data and primary source information;
2) increase market value chain services for local meat producers (including 4-H youth) interested in selling their product to local consumers; and
3) enable a capital-intensive, private sector development on a publicly-owned property overseen by a public entity.

The approaches taken to address these problems included identifying overall opportunities and constraints seen by local market players, determining necessary ingredients for success, outlining potential development scenarios, and identifying various public and private partnerships that could overcome constraints and leverage opportunities.

Background on Redwood Acres

Redwood Acres Fairgrounds (RAF or Redwood Acres) is a regional community fairgrounds facility and organization in Humboldt County, California. It is working to develop its capacity to support local agriculture and value-added processing, along with community education and recreation opportunities.

Redwood Acres Fairgrounds is the name of California's 9th District Agricultural Association (DAA). Established in 1937, RAF has been a hub of community education and entertainment, promoting the region's agriculture through annual fairs and other events.

In 2013, Redwood Acres, along with all other DAAs, lost most of its operational funding allocation from the California State General Fund. As funding dropped from $200,000 to $30,000 annually, it quickly began exploring opportunities to cut costs and increase revenues. After implementing some successful efforts, RAF realized a need for more strategic development of new initiatives and infrastructure. Staff and Board Members participated in a visioning and planning process as part of a preliminary Master Planning effort; this effort would identify viable revenue-generating opportunities that aligned with the organization's mission, and then outline the required facilities improvements, jurisdictional coordination, and phased implementation of planned developments. See the Redwood Acres Overview section for details.

As a way to diversify and grow revenue sources since losing its state funding, RAF has slowly started to transition its interim rental uses to term leases (monthly or long-term). As a result, some buildings previously only used for fair activities have been fully converted to dedicated tenant uses; other facilities are offered for temporary use and shared by multiple renters throughout the year. Many of the converted facilities now provide rental space for a variety of food, beverage, and other natural products producers. Redwood Acres has become a *de facto* food business incubator, although it is not operating as one formally.

Study Approach

Study Focus and Intended Outcomes

The purpose of this study was two-fold: to characterize the demand for services related to meat processing in the Humboldt County region and to identify opportunities and constraints related to establishing a meat processing facility at Redwood Acres.

The outcomes expected from this study included: a preliminary value-chain analysis, market assessment, conceptual design or design intent for a conceptual facility, and pro forma or business case for a conceptual operation.

Methods

This study aimed to identify a potentially feasible business model for specialty meat processing by obtaining clarity around the scale of local pork production, the nature of local pork processing, the interest of pork producers in local processing, and the gaps in the overall value chain impacting local meat processing.

The focus on pork was driven by two factors: RAF management experienced problems accessing local slaughter services for pork sold during recent fair auctions, and anecdotal evidence of local pork producers using processing facilities 150-300 miles away in order to sell their product to wholesale or retail markets.

After hosting a regional fair in 2014, Redwood Acres was faced with having to facilitate the processing of 4-H animals purchased at auction during the fair. The local meat processing operation, Redwood Meat Co., was unable to service the pigs, and Redwood Acres was forced into an alternative arrangement: transport dozens of live pigs to a facility over 200 miles away. The experience was challenging and stressful, and added considerable cost and coordination make the effort successful. Redwood Acres determined to find a better solution to this challenge, and this study was initiated to identify opportunities to service non-beef meat processing needs locally.

The challenges in analyzing feasibility for this study were caused in large part by the very small scale of non-beef meat production in the study region. As such, the study methods relied on clarifying anecdotal evidence by interviewing several known producers selling USDA certified meat, and by evaluating the existing research on market opportunities, plant design and operation, and regulations.

Despite the numerous studies available about this topic, there is an observed problem in the evaluation approach commonly used. According to Gwin and Quanbeck, this stems from several core reasons: demand for slaughter is not the same as demand for meat products, a conflict in projecting actual (existing) vs. perceived (potential) production, and fluctuating price points based on commodity market prices do not translate well to multi-layered local markets. Their conclusion is that interest does not create demand, and the cost to implement a solution typically is not balanced with a sufficient demand to create a viable operation (Gwin and Quanbeck, 2014).

Primary Research

The primary-source research conducted for this study included identifying key local stakeholders and market experts, interviewing stakeholders and including them in a planning workshop.

The stakeholder groups included: meat producers, meat processors, service providers, food retailers, and technical advisors. The meat producers included were largely limited to pork and lamb producers, with some involvement of beef and poultry producers. The limit to pork and lamb producers was due to the situation at the time the study was initiated: the one USDA slaughter facility was unable to service pork producers and pigs were being driven long distances to be slaughtered. Further, the demand for poultry processing is considered minimal, in large part due to the exemption for poultry processing and an existing operational mobile slaughter unit that is vastly under-utilized.

Stakeholders included in the research were identified based on anecdotal knowledge of the local meat value-chain and on referrals from stakeholders.

Interviews

Interviews were conducted primarily by phone and included questions pertaining to the stakeholder's current and anticipated future role in the value chain. Because of the small number of interviews conducted and the diversity of their roles and operations, questions were open-ended and tailored to individual interviewees.

Stakeholder Focus Groups and Design Workshop

In February 2016, a large stakeholder planning session was held at Redwood Acres. There were three primary components to the session: a local government roundtable, a producer-provider-interested party workshop, and a design session followed by public review and input.

In total, over 50 people attended throughout the day, and the bulk of participation occurred during the stakeholder planning workshop.

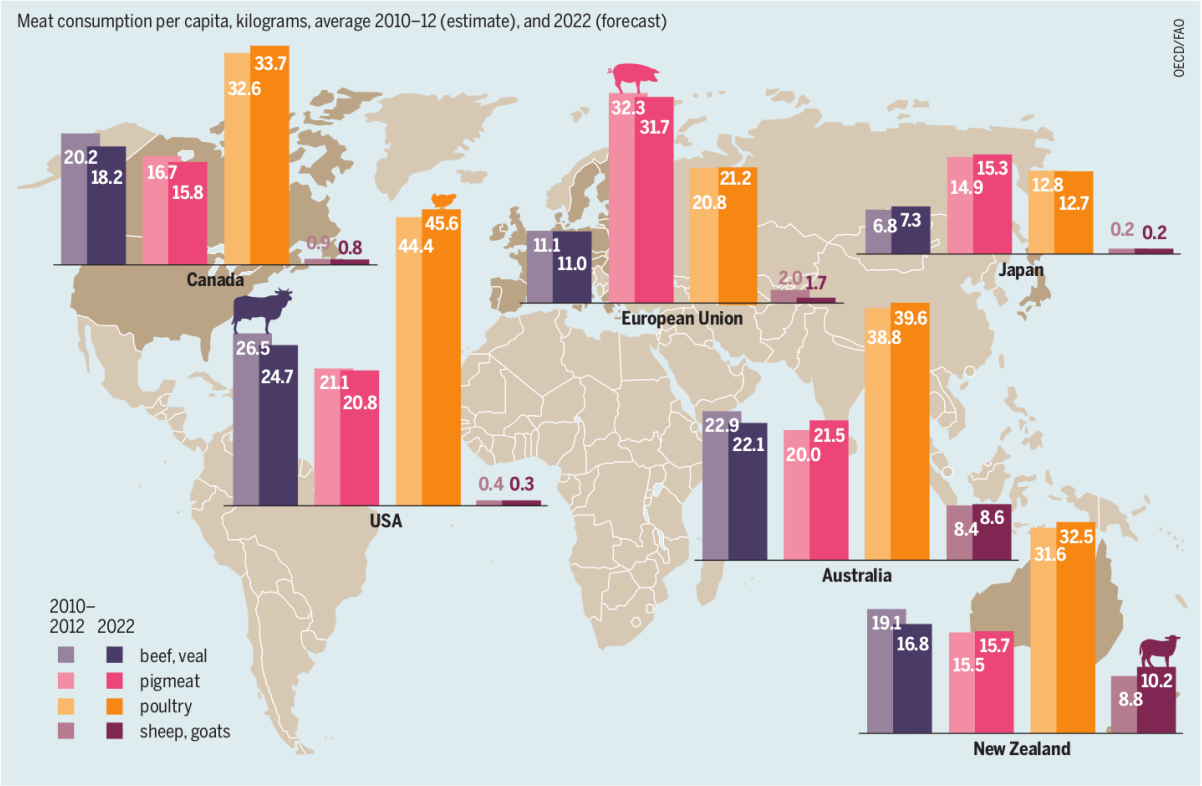
Site Study

In addition to the meat processing focused research, field investigation of the site and facilities was conducted and identification of the organizational context was performed. These efforts included confirming organizational structure, purpose and current and future operations, as well as identifying existing and planned facility uses, infrastructure and facility conditions, and jurisdictional concerns.

Secondary Research

The secondary-source research completed for this study included resources from the Niche Meat Processor Assistance Network (NMPAN) – which has an extensive selection of reports, data, regulatory information, case studies, templates and other resources. Resources from other technical assistance sources (ex: cooperative extension), news articles, and meat processing feasibility studies from nearby regions, and research reports about the local food system in Humboldt County were also used.

MARKET OVERVIEW



Meat Atlas, January 2014 (CC-BY-SA Heinrich Boell Foundation, Friends of the Earth Europe)

Meat Production and Processing

National Trends

In US markets nationally, there is an increasing interest in and demand for locally sourced products, especially local food (Martinez, et al., 2010). Unique circumstances in local and small scale meat industries center around problems of long distances between processing facilities and farms, fluctuating demand for processing services, and lack of skilled workforce and inspection services, and limited options for value added processing (Gwin and Thiboumery, 2014). According to extensive research by Gwin and Thiboumery, livestock producers and meat processors face challenges that are not easily resolved without some level of market intervention. In particular, they recommend third party market actors engage in the value chain to provide technical assistance, including coordination between market players; business, entrepreneurship and workforce training; network development among market players; and providing educational resources across the value chain (producers, processors, consumers, etc.).

Challenges of Meat Processing and Production in US

"Meat processing in the U.S. has historically been a high risk, low-margin business. Most states have shown trends of plant closures due to the retiring age of owners with no succession plan, aging facilities, and increased government regulation. This reduction of small processors is happening at a time of increasing interest of small farmers and livestock producers desiring to direct market their own meat products or market through a local or regional marketing program featuring locally grown, niche, natural or organically produced products. Thus, a disconnect appears to be occurring between specialty livestock production/marketing and processing with many states interested in helping producers find solutions to this processing gap."

Meat Processor	Livestock Producer
Labor	Distance to processing plant
Inspection regulatory requirements (time and cost)	Wait times to get animals scheduled for processing
Cost of handling and disposal of rendering	High cost of processing
Environmental constraints of wastewater	Lack of control over product and packaging specs [a]

Source: Food and Livestock Planning, 2011

Influence of Slaughter and Processing Regulations

The meat industry is a highly regulated agricultural and food service industry. The slaughter and processing regulations are often complex and create substantial cost burdens on producers, processors and other value chain players.

The following is a depiction of these regulatory influences:

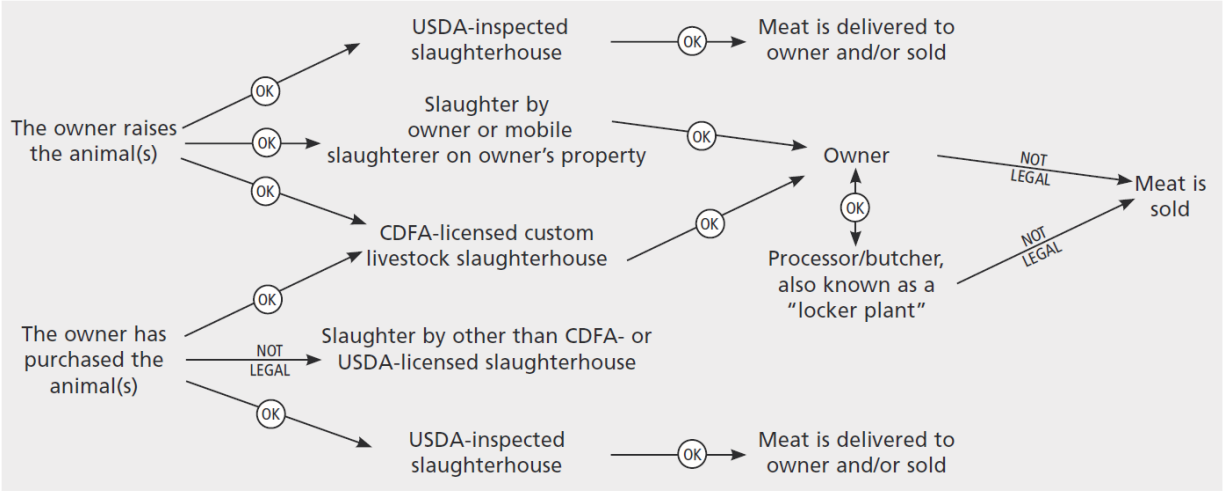


Figure 1: Schematic diagram for livestock slaughter transactions in California. Federal inspection is provided by the USDA Food Safety and Inspection Service (indicated here as USDA), and state inspection is provided by the California Department of Food and Agriculture (CDFA), Meat and Poultry Inspection Branch.

Source: Harris and Tan, 2004.

Humboldt County: Geography, Economy and Consumer

Humboldt County, roughly 4000 square miles of land and water in the far northern reaches of coastal California, is home to over 135,000 residents. Over half of its population is concentrated in its small urban and peri-urban centers. The closest major urban areas include: Redding, CA (140 miles), Medford, OR (185 miles), Santa Rosa, CA (225 miles), San Francisco, CA (280 miles), Sacramento, CA (300 miles) and Eugene, OR (300 miles).

Transportation access to the urban centers is by road and air; shipping access is very minimal, and is mostly limited to timber product exports and petroleum imports. Roadway transport is constrained by several factors, including: truck weight and length restrictions due to narrow and curvy roads, competing demand for trucking service, challenges with backhaul coordination to capture cost efficiencies, and high fuel prices. Major highway transport corridors and hubs are at least 150 miles away, and the closest urban markets are San Francisco and Sacramento, each about 300 miles away.

Humboldt County Transport Routes	Major Connectors	Distance to Connection
CALIFORNIA 299	INTERSTATE 5	140 miles (Redding)
CALIFORNIA US 101	CALIFORNIA 20	300 miles (Sacramento)
	CALIFORNIA US 199	185 miles (Medford)

Local Meat Production

Trends and Characteristics

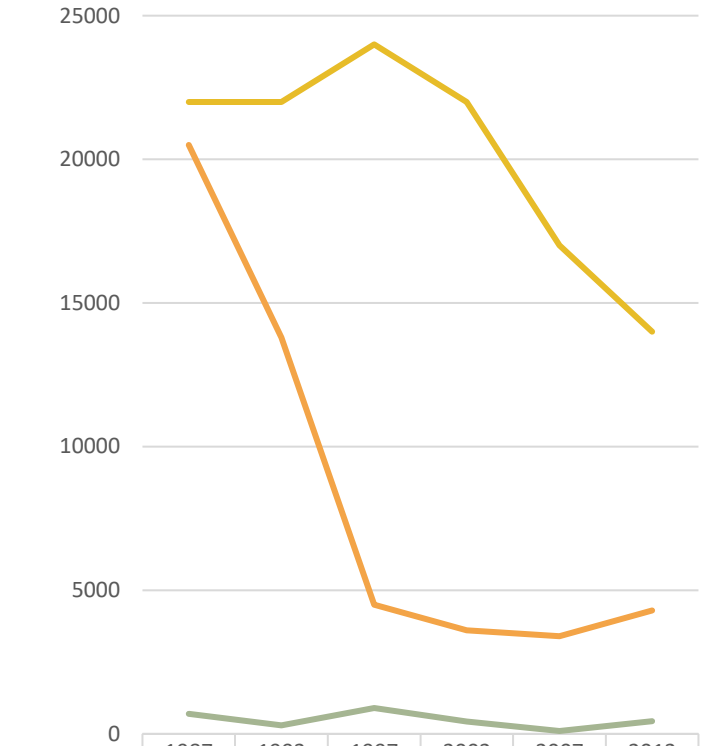
In Humboldt County, the ample rainfall and surface water sources have supported a robust livestock and meat industry based largely on pasture production. A substantial portion also practices natural or organic production; there are no known confinement operations in the local meat industry.

The industry is almost entirely based around beef cattle, with lamb production a sizable but declining segment. Pork and poultry production is very low. In addition to meat, there cow-calf operations, a handful of small poultry egg operations, and two sizable dairy industries (cow and goat).

With the exception of dairy goats, livestock production in Humboldt County has generally decreased over the past several years. In 2012, beef cows numbered approximately 14,000 (down from 22,000 in 2002); sheep and lamb numbered just over 4,200 head (up from 3,600 in 2002); hogs numbered 440, and broilers (meat chickens) numbered 3,500.

The majority of meat production is beef cattle and lamb sold in markets outside Humboldt County, primarily to the "Bay Area" (the densely populated San Francisco and surrounding regions, including the high-end tourism destinations of Napa and Sonoma Counties).

Most beef and lamb producers have large tracts of land in remote areas. Many of the hog and poultry producers have smaller-scale mixed operations – raising multiple animal species and/or produce (fruits, vegetables), hay and feed, or forest products.



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Data Source: USDA Ag Census

In general, hogs and poultry are also raised in outdoor or pasture style conditions, often utilizing a rotational production approach. For hogs, the rotational production is necessary as the hogs can quickly damage a pasture with their rooting and wallowing behaviors (especially a concern during rainy winter months). This style of production, along with smaller farm sizes, puts limits on the number of animals that can be produced by a given farmer.

Producers

This study focused on the processing needs of hog producers, but some information about lamb, beef, poultry and goat production and processing needs was also collected. Interviews were conducted with a representative sample of local producers, processors, distributors and other service providers.

Interviewees included known hog producers in Humboldt and Del Norte Counties; combined, they accounted for less than 500 hogs/year (including the 210 hogs raised by 4-H clubs that were sold at all three fairs in the two county region in 2015). The largest individual producers in Humboldt County currently raise less than 30 hogs per year; while some indicated a possibility of expanding their production in the near future, they are likely to stay under 60 hogs per year.

Of the hog producers interviewed, 60% sell their pork products directly to the public through farmer's markets and CSA type programs. These are the only producers who were identified in the region to be processing their animals into value added products (specialty cuts, cured meats, sausage, etc.) for sale beyond personal consumption. In general, these producers serve a niche market, selling premium products to higher paying customers. The pigs raised by 4-H clubs are sold during fair auctions directly to the public and, on a limited basis, to local retailers.

Lamb producers sell a small proportion of their stock locally; nearly half of the lamb sold by the largest producer interviewed for this study are slaughtered, processed and sold/distributed by a facility in Dixon, Calif. that specializes in lamb processing and market coordination.

The USDA 2012 Ag Census lists Humboldt as producing over 838 meat goats per year, but no meat goat producers were interviewed for this study. Additionally, approximately 900 baby male goats, products of the local goat dairy industry, are exported out of the county every year.

Of the producers interviewed, all identified the long travel distances and associated challenges of processing their animals outside the area as inconvenient, costly, and time consuming. However, they all expressed hesitation at the prospect of switching to a local processor if one were to be developed; they have specific needs and preferences that are being met through their existing relationships and arrangements. While some said they would consider using a local processor, they identified transparency, communication and coordination, and willingness to meet special requests as key desired attributes.

Retail and Institutional Demand

Despite its small population base, Humboldt County is home to many restaurants and retail stores that support local meat producers. Several grocery stores buy whole carcasses or bagged primals and do the final butchery (and in some cases sausage making) in-house. There are four local retailers (controlling 10 stores) that buy from local producers. Of these outlets, it is estimated that they purchase 5-6 hog carcasses per week. With a few exceptions (such as purchasing small numbers of 4-H pigs), these outlets do not source pork from local producers as there is not adequate supply of wholesale meat. Beyond retail markets, there are a few small restaurants buying very limited quantities of pork from local producers. Institutional buyers (ex: schools, hospitals) are not known to be purchasing local pork products, however many local institutions are purchasing and serving locally grown beef (this is primarily occasion-specific purchases for special events).

Regional Meat Processing Operations

Several slaughter and processing operations are serving the producers in Northern California. The operations range from custom-exempt – which can be used only for meat that will be consumed by the owner of the livestock or others who receive the meat as a gift from the owner – to USDA-inspected which enables meat to be sold to consumers. The following table lists a selection of the processors and their primary services; these processors are all within 300 miles of Humboldt County.

Facility	*Location*	*Services*
Redwood Meats	Eureka	USDA slaughter: cattle, sheep, limited hogs; cut and wrap
Happy Butchers	Humboldt	Custom slaughter and butcher
Matt Shaw	Humboldt	Custom slaughter
Ferndale Meats	Ferndale	Cut and wrap - not USDA
Country Club Market	Eureka	Processes game animals in hunting season for hunters
Taylor Meats	Cave Junction, OR	USDA processing - cut and wrap, smoking, sausage, curing
Marin Sun Farms	Petaluma	USDA slaughter and cut and wrap
Sonoma Meat Co.	Santa Rosa	USDA / state inspected processing, federally inspected smokehouse; wild game too
BelCampo	Yreka	USDA slaughter and processing
Crystal Creek Meats	Roseburg, OR	USDA slaughter and processing. Cut and wrap, smoking, sausage
Bartels	Eugene, OR	USDA slaughter - beef
Slaughter facility in Springfield, OR	Springfield, OR	USDA slaughter
Superior Meats	Dixon	USDA slaughter and processing (sheep and goat)
R and R Meat	Red Bluff	USDA butcher shop and wholesale
Wadsworth	Glenn County	USDA hog slaughter
American Custom Meats	Tracy	Value added processing (beef, pork, chicken)

Distance Traveled for Processing

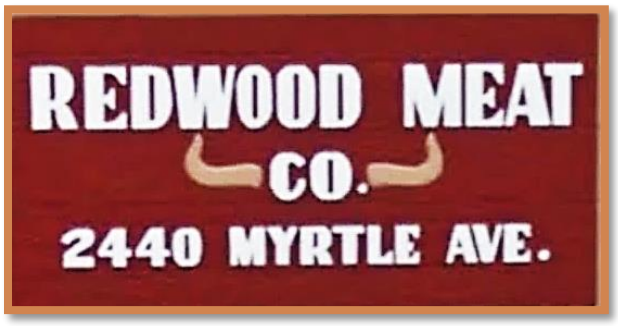
Prior to this study, the research team heard many anecdotal stories about producers traveling long distances to have their livestock slaughtered and/or processed. This was especially true with hogs during a time when the only local USDA slaughter facility, Redwood Meat Company, had eliminated hog slaughter as a cost-saving measure; this elective action was undertaken in order to invest capital into the company's beef slaughter operations which had been decertified pending USDA-required improvements (Sims, 2014).

Interviews done for this study revealed that many hog producers have come up with alternative strategies to harvest and process their animals, most of which required them to travel long distances and coordinate sometimes complex transport arrangements.

USDA-Inspected Slaughter and Processing Operations

Redwood Meat Company

Redwood Meat Company (RMC) has been providing USDA-certified slaughter, basic processing (cut and wrap), and limited product distribution for the northern California region since 1971. Since 2005, RMC has also been certified as an organic processor. The bulk of its operations focus on beef processing, but it also processes buffalo, lamb, goat and pigs. In 2014, RMC was temporarily de-certified; while it quickly resumed its certification, it made the business decision to suspend hog slaughter services as a cost-cutting measure. As of this writing, RMC has resumed hog slaughter on a limited basis.



As the only USDA-certified slaughter facility in the region (200 miles is the closest alternative), Redwood Meat Co. occupies a valuable niche in an area with high beef production. It serves farmers and ranchers in Humboldt and surrounding counties, including those with access to closer facilities. It is a small, family-owned and operated facility that works with producers and market outlets to coordinate operations in a way that enables it to weather the lean times and manage the busy, peak-demand periods. Its business model is aimed at maintaining a steady business that employs people year-round rather than hire or lay-off employees as demands shift.

On average, RMC processes about 30 beef (or beef equivalents) per week. It receives live animals, processes and hangs the carcasses to cool, and packs cuts into boxes and/or cut and wrap packages for freezer storage. Most of its customers return to the facility to pick up their products, but RMC also delivers a limited amount of product to offsite freezer storage or to retail or value-added processing outlets. RMC rents overflow freezer space from a local distributor as needed.

In general, the RMC management feels that it is meeting its existing demand for services, and future growth is not being planned. Its location presents challenges for its operations, as it has recently had new residential developments locate nearby; the sounds and smells associated with a slaughter facility invariably gain negative attention from new neighbors. Despite these challenges, the company continues to invest in upgrades to its current facility and equipment.

Custom Slaughter and Processing

Other local businesses are filling gaps in slaughter and processing for "backyard" animal production and wild game. Two entities providing custom-exempt slaughter include Shaw's Farm Butchering and Happy Butchers; these processors service local producers and hunters who wish to consume their own meat and do not have a need for USDA-certified meat. Meat processed under custom-exemption cannot legally be sold.

For animals that have already been slaughtered, two other companies, Ferndale Meat Co. and Country Club Market offer cut and wrap and some value added processing (e.g. sausage). These resources are used by hunters and producers who are not selling their meat products.

Value Added Processing

Ryan Creek Root Cellar

Ryan Creek Root Cellar (RCRC) is a newly established USDA-inspected niche meat processing business located at Redwood Acres. The owners are planning and building a facility around a business concept that focuses on producing artisan-style cured meats (e.g., salami, prosciutto, coppa) for a primarily export market. The business plan does not include slaughter, butchery, or sales of unprocessed meat.

The start up's business plan outlines anticipated production and sales volumes, as well as capital needs, for its first 5 years. The first year, RCRC forecasts manufacturing 20,000 pounds of finished product; by year 4, RCRC predicts 60,000 pounds of finished product. The products manufactured by RCRC include mostly pork, along with some chicken and beef.

At the time of this writing, RCRC's USDA inspected facility is nearly operational. At over 3,000 square feet, it includes a fermentation room, processing room, cold storage curing room, dry storage and shipping/receiving area, and bathrooms. According to the RCRC business plan, the company is likely to outgrow this facility within 5 years.

RCRC is not planning to provide fee-for-service processing or butchery, nor other forms of meat processing (e.g. smoking). However, the owners are open to exploring opportunities for collaborating with other entrepreneurs who might co-locate operations or add services, brands or products to a related business.

Currently, RCRC sources large cuts of meat from regional distributors. Future production could include meat sourced from local producers (especially beef and possibly pork), but at the scale of anticipated production, the local pork supply is not expected to meet the company's quantity needs.

Local Food System Gaps and Supports

Other market factors influence the viability of a local food industry beyond product supply, consumer demand and direct services; in particular, distribution, aggregation, storage, disposal, skilled workforce and supporting institutions.

Distribution and Aggregation

For the local meat industry, transportation and distribution is required to get animals to slaughter, retrieve meat from processors, and distribute products to consumers (producers that export animals for auction do not require retrieval and distribution). Most producers who sell their meat products locally provide their own transport to and from the processor. Some have coordinated either with the processor or with a refrigerated trucking operation to have their meat products delivered from the processor directly to a cold storage facility. Finally, most producers provide their own product distribution to the consumer markets.

The pork producers interviewed for this study identified numerous challenges that exist with securing distribution services (especially between processing and storage). While the costs can be high, the availability of services that accommodate the producer's needs are seen as a greater challenge. High market demand for trucking service, along with small freight amounts and specialized requests for delivery or handling, substantially limit options for producers.

CAFF
COMMUNITY ALLIANCE WITH FAMILY FARMERS

Increasing Access to Local Produce for Low-Income Populations in Humboldt County

In 2013, the Community Alliance with Family Farmers took a closer look at produce supply, demand, and distribution infrastructure to evaluate the potential for alternative distribution models. The final report concluded that despite growing demand for local produce, the limitations of low-volume buyers and a relatively small supply of fresh produce did not justify the capital needed to support a new business or expansion of business into this arena.

While the local meat supply chain is very different from local produce (different regulatory, transport and storage requirements, as well as a large export and local retail market for beef), many of Humboldt's pork and chicken producers are also small-scale produce farmers. Many of these farmers are satisfied with their existing scale of production (for reasons of personal interest and/or farm capacity). An additional characteristic shared among many producers also profiled in the CAFF study is the low economy of scale and subsequent higher cost of end products results in a limited niche market opportunity.

One recommendation from this study that could also be relevant to small scale meat producers is that of a "farmer shared delivery model." This model would address constraints of transportation-related food costs. It entails independent coordination among farmers and possibly other logistics providers (such as local food bank or schools) to service specific accounts by pooling products from multiple farms while one farmer performs the delivery. All participating farmers contribute to transportation costs and may rotate distribution responsibility, but each invoices their accounts individually.

Very few aggregation operations remain in Humboldt County; those that do exist operate at a very small scale or service businesses that are not handling local products. Several investigations into the opportunities for centralized aggregation have been performed in the region; generally, the findings are consistent with this study: the relatively small scale of production limits business opportunities that create value for third party services.

Storage

Both cold and dry storage are needed to support the local food system, but cold and frozen storage is a requirement for the meat industry. Of those interviewed, six of the producers said that freezer storage and meat lockers were a limiting factor in their potential to expand or to improve efficiency. For example, additional freezer space would allow one producer to slaughter more animals less frequently, but not necessarily expand operations. Beef producers identified a lack of facilities to hang carcasses for extended aging (aging enables higher sale prices from some cuts of beef).

There is one main cold storage operation in the urban area of Humboldt County; this operation is used by many producers as well as by Redwood Meat Co. Other small-scale or private cold storage facilities exist in various urban and rural locations; they are used by single entities or rented to multiple users and some are used intermittently or completely unused. It is unknown how much vacant or underutilized cold storage infrastructure exists, but anecdotal evidence suggests an unmet demand for the facilities. It is likely that the perceived demand is due to the nature of varying needs for facilities size, type, location and access.

Several investigations, including this one, have evaluated the potential demand for cold storage facilities. These studies have found that potential users are interested in facilities that allow forklift access, 24-hour facility access, secure facilities and rental space, provide variable temperature conditions, and are affordable. Ultimately, the viability of additional cold storage space is limited by a few key factors, including: very few potential users are large enough to be an anchor tenant, there is low interest in private sector response to operate a facility, the desired location of a facility varies based on users (i.e., fishing industry prefers waterfront facilities), and the costs of building a dedicated cold storage facility is costly and requires an extensive planning and approval process.

To meet cold storage needs, many individuals and businesses have rented or purchased refrigerated containers or truck trailers that provide more modular and on-demand, on-site storage.

Disposal

Disposal of animal carcasses and wastewater from processing operations is a costly and highly regulated requirement. In California, animal carcasses or parts can be disposed on “on-farm” (on personal property) subject to a range of requirements and conditions (such as distance from a well, total number of disposed carcasses, etc.). Otherwise, all animal parts not directed into the value chain must be disposed of at an appropriate facility: landfill or rendering plant. Indeed, rendering could still be considered part of the value chain, as most by-product entering the rendering plant leave as marketable products (used in fertilizers, pet food, and other products) (Gwin, et al, 2013).

Humboldt County processors were once served by a local rendering facility, which closed several years ago and was decommissioned in 2007. After its closure, North State Rendering serviced the area,

providing pick up of offal and carcasses, charging a fee for its services. As of 2016, the company no longer provides pick up service to the region. As a result, processors are required to dispose their offal at landfills or pay for trucking service to deliver the offal to North State Rendering's facility 200 miles away. Many producers and processors interviewed expressed discontent at both the lack of alternative disposal options and the cost of disposal. Redwood Meat Co. has installed refrigerated storage to stockpile offal in order to help reduce costs associated with its transport.

Workforce

As with the meat industry across the nation, finding and keeping skilled labor is a major limitation. This is complicated by the seasonal nature of the meat industry, the relatively difficult nature of the work (both production and processing), and the skill required, especially for processing. Despite these challenges, producers and processors both identified their commitment to keeping their workers employed through lean times.

An added complication, Humboldt County faces a unique challenge: the cannabis industry (much of it illegal) creates a very unbalanced workforce economy characterized by high levels of transient job seekers, lower wage employees (such as service industries) abandoning positions to obtain higher paying seasonal employment, and employee perception of value (i.e., expectation of higher wages or lack of desire to pursue low-wage jobs).

> "Hard to find folks who want to work that hard when so much easy money to be had in the area."
>
> *- Overheard*

Third Party Non-Market Players

One component of a thriving local food economy that is often overlooked is that of the third-party, non-market players; in fact, this has been identified as a critical component of a successful small scale meat economy (Gwin and Thiboumery, 2014). These are primarily educational and technical assistance institutions, including business development organizations, formal and informal networks, incentive providers, lenders, and other supportive entities. For the meat industry, NMPAN is one institution that serves this role nationally. Locally, there are a few organizations working to support meat producers, including livestock associations, farmers' market organizations, farmer support organizations, community financial institutions, cooperative extension, vocational programs, youth clubs, and others.

While these organizations serve a wide range of meat industry stakeholders, there appears to be a gap between small scale producers and many of these support services. During the research conducted for this study, it was observed that simply providing a single event for those involved in different aspects of the local meat industry and food system to come together resulted in new connections and business prospects for the producers, processors, and service providers. There is a clear need for intentional efforts that provide more direct support to and connectivity between stakeholders in order to increase the robustness of the system.

REDWOOD ACRES OVERVIEW

Best of Humboldt Fair

Awards LivestockShows
BlueRibbons Produce
Art Food
Exhibitions Crafts
Carnival

Redwood Acres strives to create a viable, modern fair that enhances our heritage by showcasing local products, entertainment and cutting-edge technology.

Value-Added Production

Pie Chocolate
Cookies
Cider Cured/Meats
Jams Woodworkss
BodyCare

A Value-Added Production Facility that echoes the core priorities of Redwood Acres supports agriculture and education, including business growth and community services.

VISION FOR THE FUTURE

To be a thriving, operationally sustainable facility viewed as *more than a fairground…* a positive economic driver and a destination for the local, regional and national population.

This vision will be achieved with support from the community to develop new opportunities for education, tourism, business incubation, events and recreation.

Recreation Hub

Trails Tourism Gardens Camping
NatureEducation
HorseRiding
Restoration Biking

A Recreation Hub that aligns with the values and interests prioritized by Redwood Acres provides supportive amenities, including horse facilities, community events venues, and educational and tourism opportunities.

Events Facilities Upgrades

DogShows
Kitchens Festivals
RollerDerby TradeShows
Races VisitorAmenities
Markets HorseBarns

Upgrades to Events Facilities that enhance the core purpose of Redwood Acres increase the viability of the organization by improving operational sustainability and increasing revenue-generating potential.

Management and Ownership

As a State District Agricultural Association (DAA), Redwood Acres has a complex management and ownership situation. The DAA is the property owner. The State of California oversees the DAA and property owned by the DAA is considered State property. The DAA is controlled by a Board, members of which are appointed by the California Governor, and it is subject to policies and regulations pertaining to public legislative bodies, including the Brown Act (i.e., California Government Code 54950). The Redwood Acres Board meets monthly; during these meetings, they receive reports and recommendations from staff, review budgets and financials, approve contracts, and hear input and presentations from members of the public.

Day-to-day management and operations are handled by one full-time staff person, the CEO/Fair Director, and a small set of part time employees and temporary support staff (bookkeeper, administrative assistant, maintenance/custodial, and marketing). Casual and contracted labor are retained for interim events as needed.

Strategic Vision

A Planning and Design Workshop was held in February 2016 to convene meat and food industry stakeholders around the problem of local meat processing. The purpose was to create site layout concepts for the portions of RAF facilities that would support niche food services. The concepts can be used to inform a future master planning process for the entire facility. Prior to the workshop, RAF engaged in a preliminary visioning process which defined key priorities, values and goals for the organization, as well as a core vision. In this process, RAF Board also clarified major design and development criteria for the facilities. These criteria are meant to influence how developments are prioritized and evaluated. The vision, activities and criteria are presented below.

Vision for Redwood Acres

Be a thriving and operationally sustainable facility that is an agricultural, educational and recreational destination for the local, regional and national population

Achieve this Vision by:

Serving as a major food and agriculture entrepreneurial hub

Providing value added ventures for primary producers

Promoting regional events and recreational activities

Expanding partnerships with tenants, funders & project developers

Being a major contributor to the North Coast economy & community

Prioritize Uses that:

Adhere to goals, mission and mandate

Increase operational revenue in the short and long term

Develop underutilized facilities

Improve the condition of existing infrastructure and facilities

Enhance public perception of Redwood Acres as *more than a fairgrounds*

Limit conflict with other facility users and activities

Consider impacts to neighbors and improve visitor safety and experience

SWOT Analysis

To understand the opportunities and limitations of implementing the vision described above, the characteristics of RAF and its position in the market were identified. These characteristics are important considerations in future decisions about developments at RAF.

STRENGTHS	WEAKNESSES
• Long-standing community institution • Committed to mission as agricultural district • State property has advantages for development • Dedicated leadership • Large volume of annual visitor traffic • Long-term community relationships	• Lacking information about underground infrastructure • Restrictions from state-controlled entity • Slow decision-making due to Brown Act requirements • Operational capacity is limited by existing revenues • Deferred maintenance and dated facilities • Conflicting priorities inhibit dedicating facility uses
THREATS	**OPPORTUNITIES**
• Other entities in region are developing some similar facilities (cold storage, food incubation, event centers, etc.) • Neighboring residential uses will limit certain types of development • Negative community sentiment regarding planned changes (i.e., loss of ballparks, racing)	• Location provides nexus for tourism/recreation, light manufacturing and agricultural activities • Growing demand for uses that can easily be developed from existing facilities • Existing tenants are expanding and provide referrals • Long-term tenants yield more predictable revenues • Sub-metering utilities and facility energy management creates more revenue opportunity

Site Studies

Various studies and assessments of the RAF site and facilities have been conducted in conjunction with or concurrent to this study. These have focused on the condition and location of underground infrastructure, emergency and evacuation use potential, public recreational access, property sales prospects, solar production potential, meat slaughter/processing, tourism and lodging development, and more. In addition to conditions, locations, and scale of RAF's site and facilities, some attention has been given to identifying impacts of complementary and conflicting facility uses.

The site offers several challenges and opportunities relating to future development: size, diversity of uses, vehicle access and circulation, deferred infrastructure maintenance, and uses of surrounding properties. Being over 50-acres in size, much of the property is underutilized and has considerable development and revenue generation potential. Currently, facilities are used by several hundred occasional users (primarily event rentals), and occupied by a small but growing number of tenant leases. Activities on the grounds vary widely; there are few cohesive elements, and the facility is viewed by many as a community catch-all. One of the challenges to RAF's future development potential is the organization's focus on maintaining uses that are valuable to the community – balancing public benefit uses with the need to generate revenue has proved to be a daunting task.

Infrastructure and Facilities

The existing infrastructure of Redwood Acres includes utilities (water, natural gas, sewer and storm drains, telephone, electricity), as well as both paved and unpaved roads and parking areas. The facility consists of two primary units, the main grounds and the parking lot and baseball field, which are divided by a main road.

Funding has not been secured to do an in-depth infrastructure analysis, so current conditions are unknown; although, historical insight and previous grounds maintenance suggests that most underground utilities are in need of upgrading/replacement. An engineer's cost estimate was prepared to identify the potential funding needed to upgrade underground utilities; to repair/upgrade all site water, sewer, and gas lines, as well as stormwater management and emergency back-up power could require an estimated $5 million. Additionally, several buildings are in need of retrofits and upgrades, especially to improve energy efficiency.

The site energy use is attached to several meters for electric and natural gas. Site water use is attached to at least two meters. The facility is served by one main sewer account. Most individual buildings or dedicated use areas do not have dedicated meters to track tenant or building utilities usage.

Vehicle access to the grounds is limited to one main gate and one secondary gate; a large parking lot across Harris St. from the main facilities serves as overflow parking and is rented for various uses. Circulation within the grounds is currently constrained by landscaping, curbs and some utilities infrastructure; visibility is obscured by some buildings; and lane width is variable throughout site. Increased traffic into, out of and through the grounds will require changes to existing vehicle and pedestrian access.

Undeveloped forestland (slated for recreational trail development), and residential and commercial properties are adjacent to RAF facilities. Ryan Slough/Creek receives runoff from much of the property.

Jurisdictional Concerns

The jurisdictional situation is generally favorable; RAF property is state-owned and is not subject to local and regional requirements for most development activities on the site.

The State of California has authority over RAF property, facilities, staffing and operations. Within the State of California, RAF is subject to a variety of State offices, including: the Calif. Dept. of Agriculture and its Fairs and Expositions Branch, the Calif. Office of the Attorney General, the Calif. Dept. of General Services, and the Calif. Fairs Financing Authority.

Internally, the decision-making process can be prolonged as information moves through the required channels. Most major decisions about facility uses, budget, and staffing must be made by the Board of Directors who meet monthly; this Board is subject to the Brown Act and discussion or decisions outside of Board meetings are greatly constrained. State-level agencies also impact decision-making as specific actions or uses of funds must be cleared through and reported to higher-level bodies.

There are several external jurisdictional entities with either direct or ancillary influence over activities at Redwood Acres.

The California Coastal Commission regulates new developments in lands adjacent to coastal areas; while Redwood Acres is not near the coast, it is near a coastal-connected slough (Ryan Slough) identified as an environmentally-sensitive area. It falls within the Humboldt Bay Area Local Coastal Plan and is subject to the provisions of that plan and related regulations.

Redwood Acres water and sewer service are connected to the Humboldt Community Services District, which both provides service and regulates use of the service. Redwood Acres is outside the city limits of the City of Eureka, but falls within its sphere of influence[1].

Additionally, the County of Humboldt not only maintains roads and other infrastructure adjacent to Redwood Acres, it owns an expansive tract of forest (the McKay Tract) surrounding Redwood Acres; this forest is intended to become a mixed use of sustainable timber harvest and public recreation.

Operations and Facility Uses

Currently, RAF oversees, operates or offers facilities for a wide range of community activities; most of these are conducted by community organizations or individuals who lease facilities for either private or community purposes. Redwood Acres has identified three core components it will prioritize for current and future developments: agricultural education, community events and recreation, and value-added processing for local foods and goods.

As it further develops these core offerings, RAF continues to provide facilities for a wide range of uses: from dog agility to car racing to private celebrations. It also is mandated to put on an annual fair that meets guidelines for an agricultural exposition.

Conflicts between uses and users typically include: parking and vehicle traffic, sound, unauthorized guest access, booking schedules, and general "look and feel" of events. These conflicts are managed to reduce impacts on users, but intervention to ease conflicts is occasionally needed. Additionally, RAF works in consideration of its residential and commercial neighbors to minimize impacts (typically sounds and parking/traffic) resulting from events and uses of its facilities.

Finally, as RAF begins to shift its facility uses toward this vision, some facilities are being converted, causing some uses to be lost. Low-use or marginal revenue producing areas of the grounds are the highest priority to convert; but some of these, such as baseball fields, are seen as necessary community elements and their conversion into other uses creates negative public sentiment.

Agricultural Education

The agricultural education efforts facilitated by RAF include: garden and nutrition education, fairs and agricultural events. A large demonstration garden was recently installed and it serves educational as well as recreational purposes. A native plant nursery is adjacent to the garden; this tenant business is also working with RAF to enhance its landscaping and restoration efforts. The newest addition to this focus is a large hydroponics greenhouse complex, developed in collaboration with the local county office of education to be used for teaching and business development purposes.

A range of agricultural events occur throughout the year, including the annual Redwood Acres / Best of Humboldt Fair. Other private entities rent the facility for garden and nature shows and events. The facility also hosts cooking and nutrition classes with community partners. One tenant operates a nature school which provides visitors with up-close animal experiences.

[1] The Sphere of Influence is a designated planning area that entitles the City to have some influence over service delivery; it also defines the area which the City expects to annex in the future.

Value-Added Processing

RAF is already developing a robust community hub where niche food and natural product processing, storage and distribution, and education and tourism activities coexist.

The goal of its value-added processing operations is to create opportunities for growing and showcasing local food, agriculture and natural resources related businesses by enhancing facilities and infrastructure and enabling services that support these businesses.

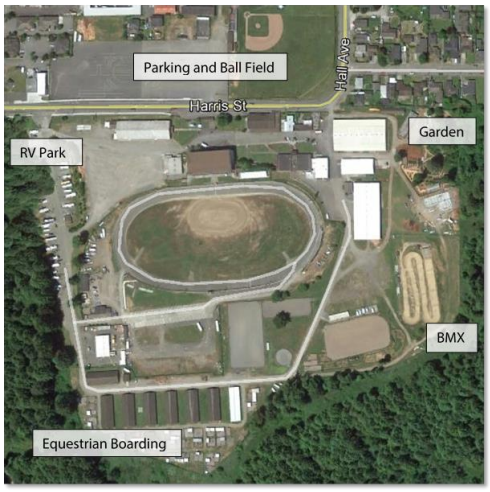
It provides affordable build-to-suit leased spaces for several niche food and natural products tenants, and facilitates tenant access to related services such as distribution and storage. Additionally, RAF provides cross promotional opportunities by including tenants in public events, media releases and private tours.

Recreation

The recreation activities occurring at Redwood Acres include community events and entertainment, horse boarding, regional trail access and camping. Currently, most of the recreation uses are independent of other uses. However, RAF intend to views its recreational users as potential users of other offerings, such as horse boarders using the adjacent forest trail system, and RV campers visiting the tasting rooms of the niche food businesses. RAF envisions a tourism hub that offers a variety of complementary uses and activities.

Design Concepts

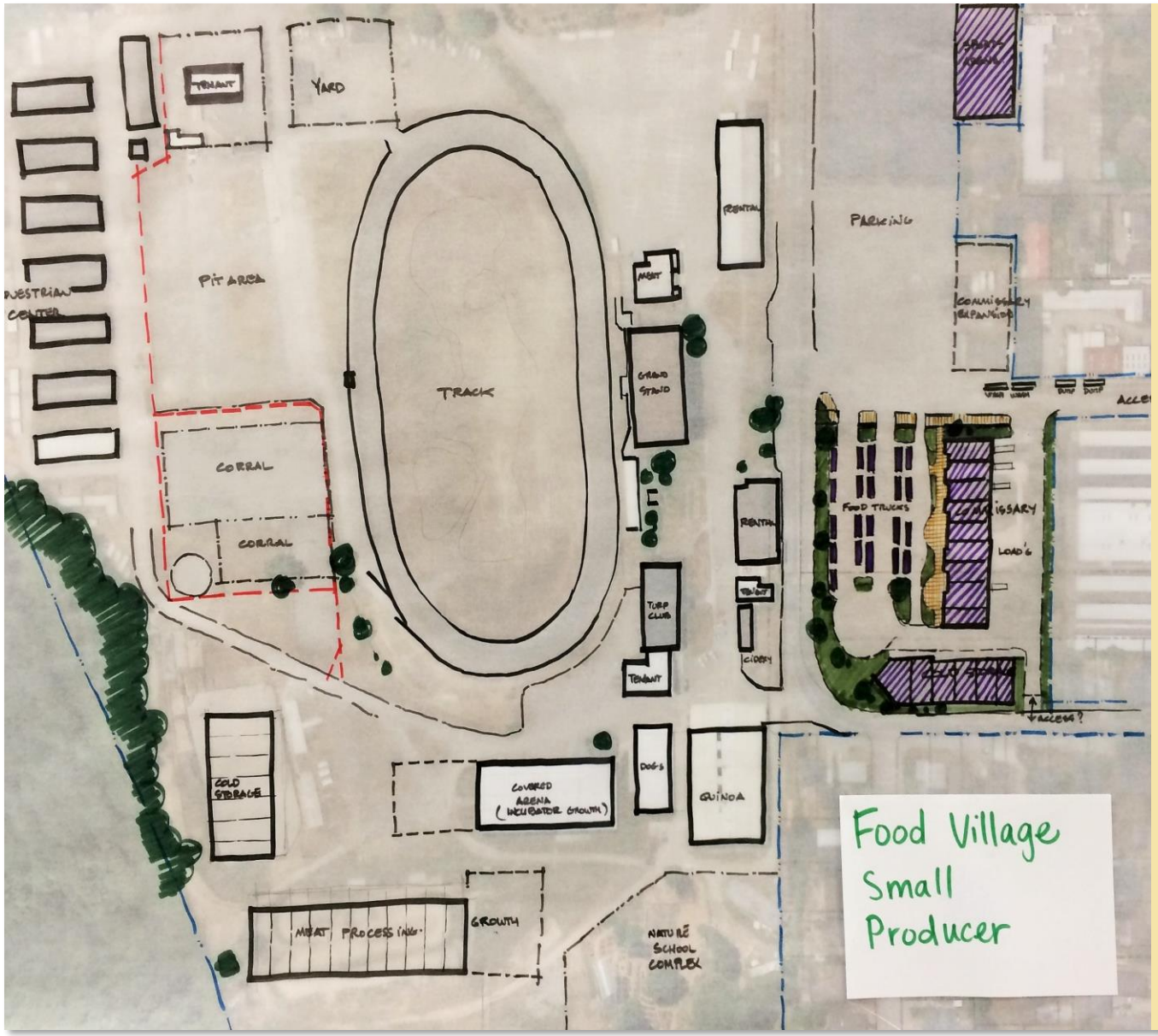
During the Planning and Design Workshop, a core team of designers compiled input from the stakeholder sessions to define design problems and develop concepts for facilities layouts that could address the issues and opportunities raised by participants.



The design effort focused on the eastern and southern portions of the property, including the existing halls, livestock barns, covered arena, BMX track, garden and nature school, baseball field and RV park. The equestrian area and race track were excluded from this phase.

The objective of the design workshop was to inspire perspectives about how the facilities could be used and developed in ways that align with the Redwood Acres vision while continuing to serve many needs of the community. The following image shows RAF facilities as it currently exists, and the three design concepts produced from stakeholder input appear on the following pages.

Food Village / Small Producer

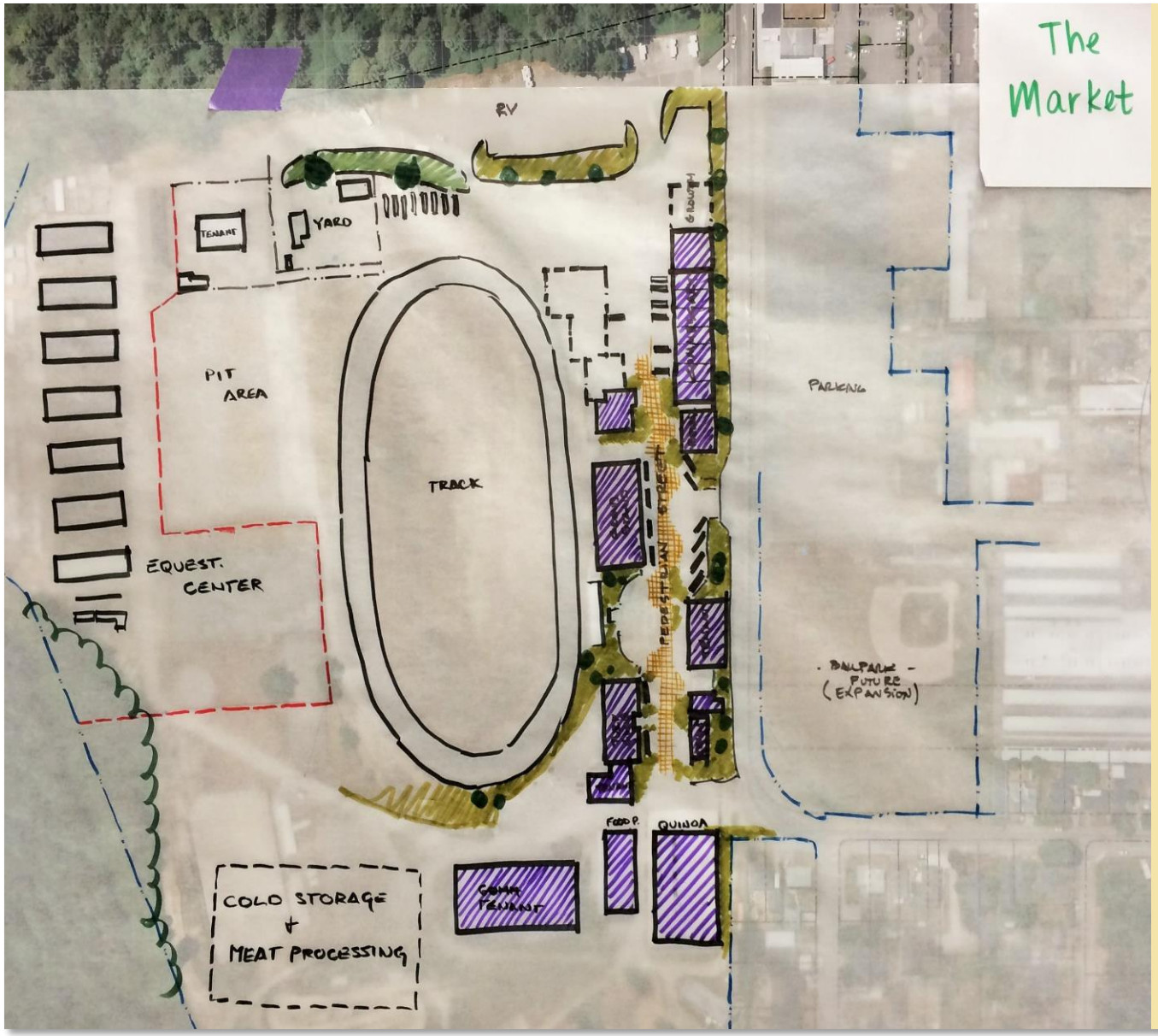


The "Food Village / Small Producer" concept creates opportunities for many small producers and manufacturers, including a commissary and incubator area separate from the main grounds; the main grounds would house mid-scale opportunities for meat processing, cold storage, grain processing & storage. Space for expansion is reserved on the main grounds to allow for growth of incubator enterprises.

Specialty Ag Incubator

This concept is similar to the "Food Village" but includes a smaller commissary, cold storage and incubator, a slightly larger scale meat processing operation, plus food processing (co-packing) facility. All development is concentrated on the main grounds, reserving the ballfield for future growth. It enhances the throughway among the existing halls to be more pedestrian friendly with enhanced seating and landscaping.

The Market



This concept is based on the "Specialty Ag Incubator" but emphasizes the pedestrian mall or outdoor market feel around the existing halls. It highlights the small retail element, encouraging tenants to sell and showcase their goods on the property, drawing tourists and visitors for tours and tastings, students for educational classes, and special events for direct marketing or fundraising.

SPECIALTY MEAT PROCESSING

Business Models

Successful implementation of any business involves tailoring it to fit the needs of the market in which it will operate. For a small specialty meat processing operation, there are several models being used throughout the country. Operational models include some or all of the following services:

- Basic slaughter and fabrication to primal cuts and ground meat;
- Mobile slaughter;
- Butchery and cut-and-wrap;
- Value-added processing (ex: curing, smoking); and
- Aggregation, distribution & value chain coordination.

For each of these services, different infrastructure and facilities, as well as business and revenue models are generally needed.

For instance, a slaughter operation will produce significant amounts of waste water and offal, whereas a value-added operation may have higher inputs for packaging and facilities that support distribution. A brick-and-mortar retail component, especially for butchery and value-added processing, will require display space and customer area. Slaughter operations and butchery have a demand for higher skilled labor; slaughter and aggregation / distribution services will require access for large trucks and trailers.

Heritage Meats is a small, USDA-inspected cut and wrap facility in Rochester, WA, that provides fee-for-service processing of all red meat species for independent farmer-marketers and retail butcher shops. They fabricate to subprimals, boxed meats, or case-ready cuts (paper-wrap or vacpac) and make some value-added products. The plant has a custom-exempt side for freezer beef customers and a very small retail-exempt meat counter. The company's primary source of revenue is its own meat sales to high end restaurants in Seattle and Portland; the second source is fee-for service USDA-inspected processing.

In 2011, the plant processed about 1000 head of cattle, 1000 hogs, 200 lambs and goats, 20 buffalo, and 40-50 deer and elk. The plant has 7 full-time staff, including 4 meatcutters (not including the owner, Tracy Smaciarz).

Heritage Meats uses two strategies to stay busy year-round. First, Smaciarz's own meat sales – 6 hogs and 2 beef each week, purchased from local farmers – provide a consistent base. He sells the meat to high end restaurants, retail food co-ops, and a…CSA.

Second, Smaciarz helps his processing customers grow their businesses and therefore their demand for processing. He reviews farmers' marketing plans and offers guidance…does test marketing for farmers…facilitates farmer-buyer relationships.

Smaciarz has to communicate with his customers regularly about why processing costs what it does. He has found that while many people want to work with a small butcher, they don't want to pay what processing actually costs at a small scale, in customized batches. "The transition from doing two beef for one person to three pork for another costs time and money," he says. "That's the challenge of a small plant environment."

Source: *From Convenience to Commitment*

The mix of services chosen for a viable business operation will depend on the available facility locations, market conditions and owner/operator capacity to manage complexity and variability.

The following tables present scenarios of three processing facilities, providing examples of the services and operational costs associated with different scales. The "Small Inspected" scenario described is very similar to the operations of Redwood Meat Co.; it is not known what RMC's operating expenses are, but the example provided below is based on national averages of operating facilities.

Three Meat Processing Operational Models

Very Small Custom-Exempt	Small Inspected	Regional Inspected
• 2,000 Sq. Ft. facility • Slaughters/cuts beef, pork, sheep, goat • Limited sausage making, smoking, curing services • All raw meats packaged in butcher paper and frozen • Option for some vacuum packaging for cooked sausages • No scale labeling (applying labels with actual weight to packages or cases) • 4 FTE employees	• 4,000 Sq. Ft. facility • USDA or State-inspected; maybe also custom-exempt • Slaughters/cuts beef, pork, sheep, goat • Sausage making, smoking and curing services • All raw meats packaged in butcher paper and frozen • Vacuum pack cooked sausage, boneless cured meats • Very basic scale labeling • 10 FTE employees	• 15,000 Sq. Ft. facility • All products USDA-inspected • Regular 3rd-party audits (GMPs, food safety, animal welfare, certified organic) • QA dep't monitors sanitation, product safety, quality, shelf life via microbial testing, sensory evaluation • Slaughters/cuts beef, pork • Sausage making, smoking and curing services, exact weight retail portions • Exact weight portion cutting of steaks and roasts • All raw and cooked meats are vacuum packaged fresh or frozen, usually Thermoformed roll stock for retail sale • Complex scale labeling for pieces, cases • 4-color preprinted labels applied uniformly to packages • Most product boxed, palletized to ship • 60 FTE employees • Offers health insurance & retirement benefits

Example Operating Expenses of Three Meat Processing Operations

Expenses	Very Small	Small	Regional
Raw materials/ingredients/packaging	$50,000	$120,000	$700,000
Labor (all inclusive)	$110,000	$300,000	$2,800,000
Office-related overhead	$1,000	$4,000	$25,000
Processing-related overhead	$30,000	$61,000	$450,000
Other overhead	$20,000	$32,000	$150,000
Loan Interest	$10,000	$25,000	$165,000
Depreciation	$10,000	$23,000	$152,000
Total expenses	$231,000	$565,000	$4,442,000
# Beef revenue equivalent per year for break even	462	1130	8884
# Beef revenue equivalent per year for cash flow	442	1084	8580

Source: Crash Course: Meat Processing 101 Small Plant Economics (3 of 4), NMPAN 2016

To Slaughter or Not to Slaughter

Nearly all of the resources available through NMPAN about small scale processing facilities include slaughter operations in the business model. This is because many regions concerned with meat processing for small-scale producers also do not have adequate access to slaughter facilities. However, despite the recent changes to RMC's business (i.e., eliminating and then slowly reintegrating hog slaughter services), Humboldt County has an existing, viable, USDA-inspected slaughter facility.

As slaughter operations are the most costly, risky and complex aspect of the meat processing cycle, the opportunity for launching or establishing a new slaughter operation is incredibly small. Of the numerous feasibility studies conducted in California alone (covering 12 counties and a few multi-county regions), only a few have concluded that a new slaughter operation would be viable, but none of the studies have resulted in a new plant being established (Gwin and Quanbeck, 2014). From these and other studies, it appears that despite a perceived market need for disaggregating slaughter services, the viability of a facility requires a high level of commitment from market players and a fair amount of coordination across the value chain (Gwin and Thiboumery, 2014).

> "Large-scale commodity processors are meat companies that earn most and at times all of their net revenue from byproduct sales; they may even lose money on the sale of meat at times. Large processors can earn so much for byproducts because they operate at a large enough scale to refine different parts into useable products and to sell in large enough volumes to access valuable international markets. Because of the drop revenue, the cost to process live animals into primal and subprimal cuts is offset and does not noticeably increase the price of the product; this is particularly true for the beef industry but also for pork and chicken." (USDA No. 150, p8)

Mobile Slaughter Units

Mobile Slaughter Units (MSUs) have received recent attention as a response to the lack of slaughtering options available to small farmers. MSUs provide capacity to perform USDA-inspected slaughter on-farm or at a site other than slaughter plant; they are trailers hauled by semi-tractors, outfitted with all the required equipment.

MSUs only provide the first link in the processing value chain; once animals are slaughtered, they must be transported to a USDA-inspected facility for further processing, freezing, and packaging. They also place a substantial burden on the slaughter location (typically a farm site), requiring specific infrastructure such as concrete washing areas, isolation corrals, and waste disposal. Further, many farms are located on roads which are largely inaccessible to the large tractor-trailer rig. While MSUs have successfully addressed the slaughter needs of some farmers, they do not fulfill a majority of the demand for such services.

Other Value-Added Services

Other services included in the meat processing value chain include butchery, value-added processing, and value chain coordination. These services can be much less complex than a slaughter operation, and often are coupled with other related activities (for example, a specialty butcher housed in a boutique grocery). They can also be viable at a smaller scale than a slaughter operation.

Most importantly, the existence of other value-added services provides a meat processing operation with more economic stability, as they enable product diversification, source identity and branding, connection with market outlets, and other value-generating outcomes.

Butchery can include preparing cuts of meat, grinding, and cut-and-wrap (packaging of cuts for distribution and sale). It is a necessary service if meat is to be marketable beyond customers willing and able to butcher whole or sides of an animal. Butchery can also add value to existing processing services by offering custom-order fulfillment and retail-ready processing and packaging (e.g., smaller portion packages, approved labels, and branding).

Value-added processing is not as necessary a service as butchery, as it typically involves preparing recipes using cuts or ground to make a final product that is seasoned or preserved. Value-added processors often serve niche markets, selling premium products that command a higher price point.

The range of value chain coordination services can be hugely valuable to a multitude of stakeholders participating in the meat production and processing market. Value chain coordination can include aggregation, storage and distribution services, brokering, sourcing and collective purchasing, business networking, introductions of products to new markets, and branding or co-branding. It can also include business services and technical assistance.

As a result of effective value chain coordination, individual businesses develop in ways that are challenging or impossible to do independently. Relationships can be facilitated for producers who have limited access to new market outlets or who do not operate at a scale required to enter certain markets. Bridges can be built between producers and processors who struggle to source inputs in a manner that gives them predictability and reliability for their operations.

These facilities, services and other supports are often unaffordable or inaccessible to producers and processors; providing access to them creates opportunities for overall business growth and stability. Conversely, the absence of these supports can also inhibit the success of a stand-alone business (Wodka, 2016).

CONCLUSIONS AND RECOMMENDATIONS

This study set out to identify the opportunities and constraints of establishing a specialty meat processing business operated by a private entity as a tenant of Redwood Acres Fairgrounds. As a result, it clarified and evaluated several conditions of both the site (RAF facilities) and the market (Humboldt County's local food system).

The existence of a fully-operational USDA slaughter facility – one that appears to be serving most of the region's needs for slaughter – and the presence of other small custom-exempt slaughter operations eliminates the feasibility of establishing a new slaughter operation.

The scale and business model anticipated by Ryan Creek Root Cellar is not likely to procure significant amounts of meat from local pork producers, because the business is not planning to offer aggregation or branding, and supply of excess meat does not appear to exist. Farmers growing and selling pork are not selling more than nominal amounts of meat to wholesale accounts, and most operate business models geared for direct retail sales.

Value chain factors present significant barriers to growing local meat (and other food) businesses. Transportation, distribution, value-added processing, business and market development and technical assistance are all elements that limit opportunities. Coordination or enabling of these activities through development of infrastructure, relationships, logistics solutions, and expertise would amplify opportunities for new and existing businesses.

The position of RAF as a government-owned facility – with a mission to serve the community and a focus on agriculture and education – which has underutilized facilities and an appetite for sources of revenue that will sustain its operations, makes it well-suited to support the growth of local food businesses, including a specialty meat processing operation. Because it is an emerging hub for food-related manufacturing, it could enhance its value and potential revenue by developing a more robust support structure for its tenants.

Finally, finding opportunities to invest needed capital into RAF's facilities and the businesses locating there will require different arrangements than the current model employs. RAF will need to develop strategies that provide business tenants with more security for their investment, for instance, by committing to long-term lease arrangements and public-private partnerships. It will need to produce revenue streams beyond rental fees, for instance by offering ancillary services or amenities. It will need to eliminate revenue leakage, for instance, by submetering tenant utilities and performing break-even analyses of its revenue centers. It will need to dedicate space for commercial development, prevent conflicting uses and support complementary developments.

Ultimately, the establishment of a non-slaughter meat processing business at Redwood Acres appears viable, but the potential growth and durability of this operation will depend on a wider range of associated offerings to support it. The following model outlines one potential scenario.

Recommended Business Model Description

While a business model is presented below as one example of a potentially feasible operation, the viability and robustness of a local meat industry does not hinge on one specialty processing business. Rather, it relies on the extent of value chain coordination that can occur to fill critical gaps and pursue valuable opportunities.

To enhance the meat processing activities at RAF, and the viability of the region's meat industry, RCRC should expand its business model to include butchery and custom fresh processing (sausage, etc.) as well as aggregation; RAF should facilitate value chain coordination including distribution and storage, plus spearhead network development, technical and business development assistance, and advocate for regulatory and policy changes at state level. This will require RCRC to adapt its business model and/or find business partners or subtenants who can enable the additional services. It will require RAF to prioritize and commit additional resources to the incubation efforts, including staff time and facilities, and planning for future facilities development

Based on the research performed for this study, the recommended business model operates in partnership between RCRC and RAF. It provides USDA-inspected value-added processing as its core function, and coordinates or provides related value chain services. It is a modest-sized, bootstrapped startup that produces cured, fermented and smoked meats packaged for resale or direct sales (retail), fulfills custom butchery orders for specialty cuts, ground and fresh sausage, provides rental spaces for dry aging and cold storage, and facilitates distribution services. Beef, pork and poultry would be the primary meats used.

The implementation of the business would occur in phases, with the cured meats operation launching in Phase I, the specialty fresh meat butchery launching in Phase II, and the storage/distribution services launching in Phase III. The viability of Phases II and III would rely on the success of Phase I, as Phase I would establish valuable market connections (relationships with inspectors, producers, resellers, distributors and others), provide clarity on price points and product sales margins, and establish a proof of concept and capacity to perform before investing additional resources into the people, property and equipment needed for later phases.

The role of RAF in supporting this business model will entail additional value chain coordination and facilities supports such as the following:

- develop facilities to support shipping and receiving activities;
- provide adequate underground utilities for water and energy supply as well as wastewater discharge and possible pre-treatment;
- develop lease agreements or joint ownership agreements with tenants that enable more secure private investments and more value capture from tenant business growth; and
- enhance business incubation services and facilities, including shared meeting space, USDA-certified rental kitchens, cold storage, network connections, collaborative marketing and technical assistance.

Opportunities for Local Meat

Initially, local pork or poultry production would not satisfy the quantity needed for this business; meat would be sourced from a regional distributor. However, during Phase I, the business would establish relationships with local farmers to identify needs for quantity and quality and it would secure growing contracts if possible. During this phase, the business would also establish its best practices, operational efficiencies and sales pipelines.

The products made and sold during Phase I operations would not utilize the entire slaughtered and dressed animal; instead, specific amounts of fat and cuts such as shoulder, leg and jowl would be required. Assuming the raw product needs for Phase I would utilize one-third of a finished, dressed pig (estimated at 200 lbs.), this quantity of meat would need to be sourced from 25-30 pigs to meet the year 1 target of 6,000 pounds of product sold. By year 3, the business would require meat from an estimated 95-100 pigs.

It is possible the local market could meet this demand, although this does not account for competition from direct retail market sales. Additionally, it does not address the issue of marketability of the unused cuts and portions of meat. Most producers will be unwilling to sell unprocessed meat at wholesale costs when they can capture premium prices from direct sales. It is likely that for the business to source local pork, producers would need to be willing to manage a mixed market operation, selling some meat to processors and some under their own brand.

Phase I of the business does not provide value added opportunities for farmers selling under their own brand, as meat would be purchased and sold under the house brand. However, in Phase II, the business would offer source-identification and/or labelling of branded products for resale by producers or other outlets.

Phase III of the business model would further enhance the local meat production and processing system by filling gaps in services and increasing market opportunities for a range of meat products.

Business Financial Analysis

Funding Opportunities

With the exception of small grants received for specific projects, RAF is not in a financial position to fund or finance tenant improvement projects. As such, tenants that require capital expenditures to establish their operations must be self-funded. The models for self-funding typically take the form of tenant/owner investment (through bootstrapping or personally guaranteed financing) or other business investment (such as an angel or equity investor).

Other Financial Considerations and Needs for Investment

Investments into this business venture require other considerations besides the business performance and market characteristics. Limits to private investment in state-controlled property severely constrain business growth and facilities development potential. Opportunities to off-set costs are present through RAF's ability to offer below-market rents, but development of other strategies, such as collective purchasing of raw materials, shared spaces and services, or renewable energy generation should be explored.

The legal structure of this business will influence what investment opportunities are feasible. For maximum potential, this business should be structured as an LLC or C-Corporation, both of which can be set up to allow investment from those who do not work directly in the company. This structure could also enable RAF to negotiate an equity stake in exchange for reduced rent or other services it might provide.

Maintenance and upgrades of RAF's defunct infrastructure may need to be performed to meet the needs of this business as it grows. Likewise, should the business need to expand outside its current footprint, the options for relocating at RAF would be influenced by availability of utilities infrastructure.

Putting in place a long-term lease with RAF would enable the business to more easily make investments of capital, take advantage of cost-saving opportunities such as solar generation, and also provide RAF with more long-term financial stability.

RAF Investment Needs

Finally, in addition to at least part-time staffing necessary to oversee the facility uses and coordinate incubator-type services, RAF's role will require other investments to maintain the viability of this business (as well as its other specialty product businesses). The costs associated with these activities and a cost-benefit analysis have not been performed as a part of this or other studies, but should be conducted prior to committing to further development.

The more critical need is for planning and design services as these will enable more efficient use of limited funds used for facilities improvements. These services are necessary for ensuring long-term cohesiveness of the facility and for implementing future construction projects that meet the needs of the tenants, the facility, and the jurisdictional agencies. Facilities planning needs include: infrastructure mapping, energy planning, circulation and safety planning, and time of use planning.

Cost Estimate and Pro Forma

A construction cost estimate and pro forma was prepared for Phase I of the business implementation. It is based on a rough concept of the RCRC business model, and includes costs of remodeling and retrofitting an existing building at the RAF facility and five years of operations.

The total estimated cost for the 3,500 square-foot project is nearly $300,000. This includes specialized equipment and materials for outfitting the USDA-certified facility that performs specialty meat processing without slaughter and has a small retail section. The operation would be scaled up gradually, adding more automation and higher-capacity equipment as sales volume increases.

The pro forma for this concept shows owner investment and deferred salaries for the first 4 years of operation, supported by very limited financing. At the costs projected for construction, equipment and operations, the sales volume needed to break even is 6,000 lbs. in year one, peaking at over 21,000 lbs. in year three, and achieving a net profit by year 5 once sales exceed 14,000 lbs.

The assumptions made for this pro forma include:

- Constant profit margin on product over time;
- Deferred owner salaries for 4 years;
- Only routine maintenance on equipment;
- Very low financing burden; and
- Business growth will be accommodated by existing processing space.

Financial Pro Forma - Construction and Start-up Uses and Sources of Funds						
	Total Estimate	Year 1	Year 2	Year 3	Year 4	Year 5
Uses of Funds						
Capital Project Costs						
Construction Costs - Tenant Improvements						
Engineering/Design	$ 5,000	$ 5,000				
Labor and Materials	$ 50,000		$ 50,000	$ 14,000		
Fees	$ 5,000		$ 5,000			
Rent	$ -		$ -			
Start up Costs - Equipment						
Hanging Equipment	$ 10,000	$ 5,000	$ 5,000			
Cold Storage and Refrigeration	$ 36,000	$ 10,000		$ 26,000		
Dehumidification	$ 4,000	$ 4,000				
Sealing and Packaging Equipment	$ 6,000	$ 6,000				
High Capacity Meat Grinder	$ 12,000		$ 12,000			
Meat Tumbler	$ 50,000		$ 50,000			
Link Tying Machine	$ 25,000			$ 25,000		
Modified Atmosphere Packagins Unit	$ 80,000			$ 80,000		
Retail Equipment	$ 20,000			$ 20,000		
Total Remodel and Startup	**$ 272,700**	**$ 27,000**	**$ 109,800**	**$ 148,500**	**$ -**	**$ -**
Contingency	**$ 27,270**	**$ 2,700**	**$ 10,980**	**$ 14,850**	**$ -**	**$ -**
Operating Costs						
Operating Costs						
Business Development	$ 25,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Insurance	$ 6,000	$ 1,200	$ 1,200	$ 1,200	$ 1,200	$ 1,200
Maintenance	$ 6,000	$ 1,000	$ 1,000	$ 1,000	$ 1,500	$ 1,500
Rent and Utilities	$ 60,000	$ -	$ 13,000	$ 14,000	$ 15,000	$ 18,000
Payroll Expenses	$ 520,000	$ 45,000	$ 90,000	$ 105,000	$ 130,000	$ 150,000
Supplies	$ 27,000	$ 2,000	$ 4,000	$ 6,000	$ 7,000	$ 8,000
Total Operating Costs	**$ 644,000**	**$ 54,200**	**$ 114,200**	**$ 132,200**	**$ 159,700**	**$ 183,700**
Financing Costs						
Low-interest equipment loan ($49,000 @3% interest for 7 years)			$ 7,210	$ 7,210	$ 7,210	$ 7,210
Total Financing Costs			**$ 7,210**	**$ 7,210**	**$ 7,210**	**$ 7,210**
Total Project Costs	**$ 943,970**	**$ 83,900**	**$ 242,190**	**$ 302,760**	**$ 166,910**	**$ 190,910**
Sources of Funds						
Owner Investment		$ 83,900	$ 202,390	$ 284,960	$ 33,820	$ -
Profit/Retained Earnings		$ -	$ (9,200)	$ 17,800	$ 133,090	$ 234,090
Financing						
Low Interest Equipment Loan ($49,000 @ 3% for 7 years)			$ 49,000			
Total		**$ 83,900**	**$ 242,190**	**$ 302,760**	**$ 166,910**	**$ 234,090**
Net		**$ -**	**$ -**	**$ -**	**$ -**	**$ 43,180**
Sales volume for break even @ $20/lb through year 3 and $25/lb years 4-5		5,993	17,299	21,626	11,922	13,636

Key Opportunities and Limitations

Market and Site Opportunities

- Regional facilities, services and related operations could develop more access to cold storage, transportation and additional value-added processing
- RAF site would provide colocation of valuable services to reduce transaction costs
- Increased pork production could replace imported pork for new and existing manufacturing and retail outlets
- Facilitated connections between value chain stakeholders can amplify innovations and collaborations and increase efficiencies
- Coordination between producers and processors can even out demand fluctuations
- Consumer education can drive demand upward
- RAF facilities and position as a public entity create opportunities in supporting economic development through food incubator operations partnerships by allowing below-market rents, centralized services and room for businesses to expand

Market Limitations

- Low consumer demand for higher-priced meat and low value parts (feet, etc.), along with thin profit margins stifle wholesale market development for small scale meat operations
- Low and fluctuating production inhibits robustness of processing business and market availability
- Environment and production conditions (wet climate, small farm size, natural/rotational methods, humane production/processing) force smaller production scale
- Lack of ancillary services (transport, cold storage, specialty processing, offal disposal) increase costs and barriers to market
- Regulations create hurdles that are challenging for small scale meat producers and processors to overcome or justify

Site Limitations

- Limited funds for planning, facilities improvements, marketing require outside investment
- Legal structure of organization requires State involvement at many levels of decision-making and adherence to many public procurement requirements (despite loosening of rules due to AB2490); efficiencies and savings could be gained from streamlining by contracting to third party providers to manage some aspects of infrastructure and operations
- Management and operations are too spread thin to spearhead major consolidated development effort, despite current and previous successes
- Deferred maintenance of facilities and infrastructure and unknown conditions and location of underground infrastructure increase risk and costs of development
- Conflicting uses and community support/interests prevent some development opportunities
- Limited access to financing and capital, as well as private investment opportunities cause very slow moving and inefficient planning and development

Strategies for Change

General community interest in more localized production and processing was a major impetus for this study. However, much of this interest is based on an ideological desire to shorten the value chain and on a perceived demand or service void that stems from anecdotal evidence. This study aimed to validate some of the hearsay and to analyze the food system components that could either hinder or support more local meat processing activities.

The strategies recommended below are presented as opportunities for involvement from all stakeholders in the local meat and food system. As with any system, its viability depends on all parts working together.

Reduce Barriers by Advocating for Regulatory & Policy Changes

1. State fiscal decision-makers should allow Del Norte Fairgrounds Recreation and Park District access to funds it has generated through local tax assessments
2. State legislature should adopt regulations that increase options for animal carcass and offal disposal to allow for composting, biodigestion or other small-scale operations
3. State department of food and agriculture should adopt policy to enable USDA-equivalent state-level certification of meat products
4. RAF and community should engage in advocacy for changes to state-level rules that inhibit local meat production and processing (including changes to offal disposal and state certification)

Increase Resilience by Forming Partnerships & Supporting Private Investment Potential

1. RAF Board should ensure its adoption of policies and procedures to enact provisions of AB 2490, which increased autonomy for individual DAAs to contract and enter into property transactions, including establishing long-term leases to provide public or private investors with security of investment
2. RAF should finalize and adopt a 20-year Master Plan for development as a means to qualify for certain types of funding for capital projects
3. Establish partnerships with tenants, neighboring jurisdictions, and others to increase access to USDA, EDA and similar funding sources
4. Enter into public-private partnerships to increase savings and efficiencies related to energy use, waste reduction, business incubator operations, etc.
5. Partner with and support coordination or establishment of related services and operations, including cold storage, transportation and logistics,
6. Partner with local workforce and business development entities, including vocational training and business support programs to provide skilled training for meat processing and production and business services (marketing, sales, business finance, etc.) for meat producers and processors.

Drive Demand by Increasing Awareness through Community Events and Education

1. Host and promote community events to showcase local meat industry and business operations
2. Develop and distribute educational materials, host educational events, and partner with community entities to increase consumer knowledge about local meat production, including costs and benefits.
3. Decrease diversity of activities hosted by or at RAF and focus on core offerings (food/ag incubator, recreation and education)

Enhance and Facilitate Value Chain Functionality

1. Develop capacity to serve meat industry with cold storage, transportation and logistics, alternative disposal, and improvements for Redwood Meats facilities
2. Identify and support development of additional specialty meat processing operations, including drying, smoking, curing, specialty butchery, and facilities/services for community members to process backyard livestock or wild game.

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