Upper Midwest and Northern Minnesota Cold Storage Assessment Brief

This brief describes the need for additional cold storage capacity in the five-state region and a defined local region in Northern Minnesota. The report identifies a need for additional cold storage among larger regional independent processors located outside areas with higher cold storage penetration. There is also a need for more cold storage in closer proximity to meat processing facilities, resulting in easier access and lower transportation costs.

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Background

In September 2021, the Agricultural Utilization Research Institute (AURI) and the United States Department of Agriculture, Agricultural Marketing Service (USDA-AMS) signed a multi-year cooperative agreement focused on the Upper Midwest's small meat and poultry processors. The project explored opportunities to strengthen industry resiliency and create solutions to position the processors for success.

As part of this project a needs assessment was conducted examining the resiliency of the Upper Midwest's meat and poultry industry. The assessment identified a need for additional cold storage in the five-state region. Cold storage is necessary for the distribution of perishable foods, including meat products, in the Upper Midwest five-state region. Access to cold storage is critical for meat processors to maintain product quality, extend shelf life, assure food safety, avoid post-harvest losses, and reduce transportation bottlenecks during peak production periods. In response, AURI commissioned a series of two cold storage studies to examine the current state of cold storage infrastructure in the Upper Midwest, along with a more focused study on the Northern Minnesota region. Understanding and overcoming regional bottlenecks for cold storage expansion is the focus of this study.

Researchers utilized a five-step process to conduct this study and report findings (Figure 1). First, a secondary source review from available online resources was conducted to gather background information on cold storage needs in the United States, including the Midwest. Following the secondary source review, researchers developed a detailed moderator guide to organize and prioritize key interview questions.

Next, the team identified participants in the Upper Midwest region for in-depth interviews to provide commentary on their experiences in the cold storage sector. Participants included four independent meat processors with high volume and fast-growing businesses that need additional cold storage; two meat processor association executive directors; three land-grant university staff members; one regional cold storage financier; one cold storage/logistics director who works for one of the nation's leading frozen food manufacturers; and four state meat inspectors. Cold storage facility locations and independent processors were identified and mapped.

Figure 1. Project Methodology

Researchers found that cold storage is not readily available to most independent processors in the Upper Midwest for numerous reasons. Existing cold storage space is largely contracted by national processors, resulting in limited availability. Moreover, the region is a low priority for cold storage facility expansion, as investors and capital sources target high-population areas when developing new facilities. While most cold storage capacity is concentrated in metropolitan areas, a business case can be made for cold storage development outside of urban centers.

The following sections describe these findings in additional detail. First, the state of cold storage in the five-state region is described, followed by an exploration of cold storage in a smaller area of Northern Minnesota.

Five-State Cold Storage Assessment

Background Research Findings

Researchers first conducted online searches to better understand the overall U.S. and regional cold storage landscapes.

Cold Storage Growth Drivers

- U.S. cold storage inventory is aging and inefficient
- Home delivery and e-commerce grocery shopping are increasing
- U.S. imports of meat and dairy have been increasing
- More medicines and vaccines require refrigerated storage

Cold Storage Locations

- California, Florida, Arizona, Texas, and Georgia are the top five states for cold storage space based on cubic feet [(1)].
- California, Wisconsin, Texas, Washington, and Florida are the top five states for cold storage space based on the number of facilities [(2)].

Upper Midwest Cold Storage Current Capacity

- As of 2021, there are 158 cold storage facilities in the five-state region (Figure 2 [(2)USDA]), with 641 million cubic feet of capacity (Figure 3 [(2)]) representing 11% of U.S. cold storage capacity.
- Wisconsin leads in total cold storage capacity due to its proximity to Chicago, Illinois, a major distribution hub for both food and meat products.
- Minnesota-based Jonny Pops created Vortex Cold Storage, which constructed a new 170,000-square-foot facility in Albert Lea, Minnesota, valued at $40 million [(3)].

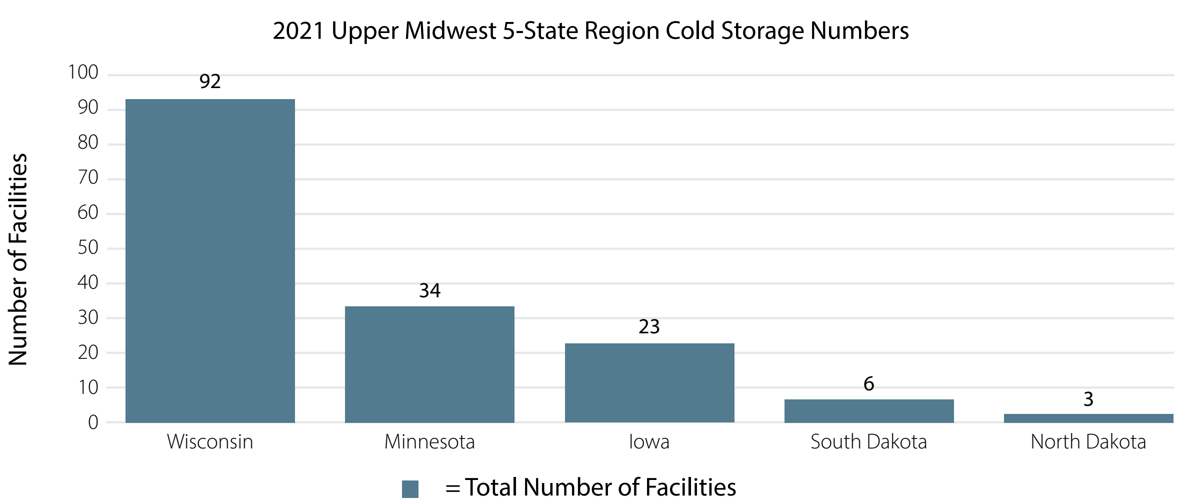

Figure 2. Total Number of Cold Storage Facilities in the Upper Midwest Region 2021 [(2)]

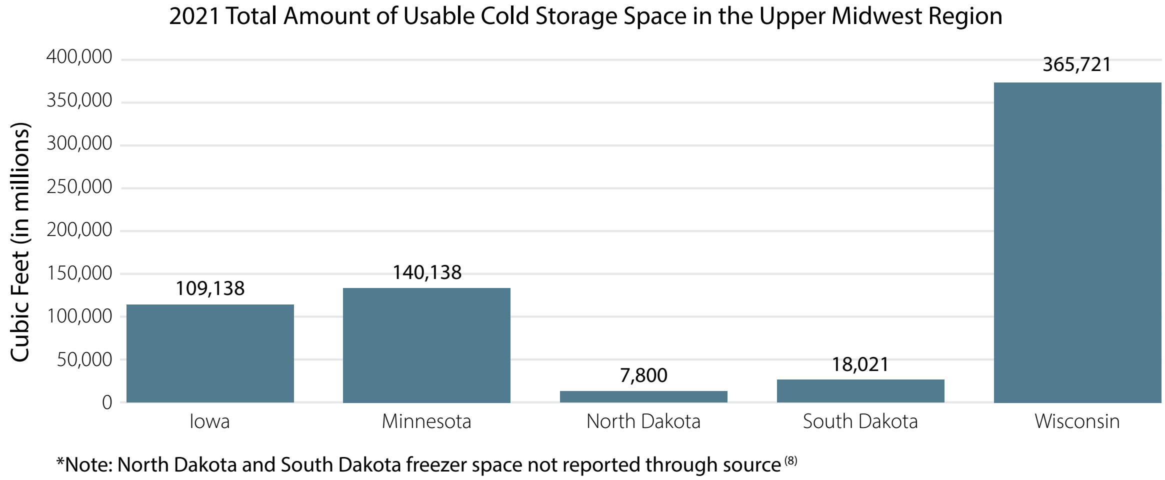

Figure 3. Total Usable Cold Storage Space in the Upper Midwest Region 2021 [2]

Interview Findings

For the second stage of the project, in-depth interviews were conducted between May and July 2023. In total, 14 interviews were completed with 15 individuals representing the following perspectives:

- Four independent meat processors seeking additional cold storage
- Two meat processor association leaders
- Three university faculty members
- One regional cold storage financier
- One national food manufacturer cold storage/logistics manager
- Four state meat inspectors

Following the interview phase, researchers categorized and summarized major themes for the five-state region.

Cold Storage Products and Seasonality Bottlenecks

Regional meat processors highlighted several seasonal bottlenecks impacting cold storage capacity. When combined, these bottlenecks can span up to nine months of the year for some processors.

- Summer—grilling (steaks, sausage, ground meat), farmers' markets
- Back to School— institutional only
- Fall— hunting, post-harvest livestock finishing (roasts, sausage)
- Holiday—Thanksgiving, Christmas (turkeys, hams, roasts, specialty meats)
- Spring— pre-planting livestock finishing (steaks, roasts, ground meat)

2.3 Regional Cold Storage Locations

Despite being aware of several cold storage facility locations throughout the region, respondents noted current cold storage locations present challenges for all sizes of meat and poultry processors. Locations tend to favor larger population centers, major highway access, and proximity to large processing and distribution facilities. Additionally, there is a need for refrigerated transport systems to and from existing and future cold storage sites. Interestingly, high-volume processors with their own freezer truck fleets indicated a need for additional refrigerated transport system services, while other processor respondents were unaware of existing services. This lack of access and knowledge hinders growth.

Limited Desire to Expand On-Site Cold Storage Among Small Processors

Meat processors of this size focus on custom processing versus retail. Finished product storage space is not only needed for aging the meat, but also awaiting customer pick-up of their meat. These processors typically meet their on-site needs by repairing or retrofitting their freezer space and augmenting it with temporary storage, such as reefer trailers. Investing in new facilities or contracting off-site storage is not a primary focus of most processors interviewed. However, some expressed interest in new investment or off-site storage options should they become available. Processors interested in additional cold storage options generally offer a combination of diverse product offerings and serve multiple market channels or want to expand and further diversify their operations.

Larger Regional and National Processor Needs

Larger regional and national processors already utilize commercial cold storage. Cold storage is often contracted at commercial facilities and is not considered a core business function. The pinch point for these businesses is the transport of products from the production facility to the commercial cold storage facility. Paying for this transportation often limits the processor's growth potential. As a result, some opt to invest in on-site cold storage. In contrast, others are interested in more contract options closer to their location.

A processor interested in additional cold storage must consider the associated costs. Conducting a feasibility study can determine the appropriate venture to pursue, depending on the processor's circumstances. In general, regional and national processors have the greatest need for increased cold storage due to processing a higher volume of products and serving a multitude of market outlets.

Factors for Implementing Additional Cold Storage

Researchers could not identify a shared independent processor cold storage facility in the region. Cold storage facilities open to serving smaller processors must align on location and ease of access, which are critical factors to independent processors. Coordinated refrigerated transportation logistics could also be considered, as off-site cold storage transportation is a barrier to smaller processors. The delivery and drop-off processes are time-consuming and can impact employee needs.

Cold Storage Pricing

For processors utilizing commercial cold storage or operating cold storage logistics, pricing practices varied across all line items, including monthly rates, pallet fees, and pricing per square foot. Pricing can vary based on factors such as the size of the storage facility, duration of storage, whether it is refrigerated or frozen, and any additional services provided by the facility. Annual increases are also often built into cold storage rental, with pricing increases driven by factors such as:

- higher electricity costs
- wage growth
- commercial company consolidations
- few available cold storage providers, resulting in a lack of competitive pricing

Respondents who directly work in the cold storage industry noted that while prices are increasing, services are decreasing, which could spur an interest in shared facilities aligned to processor needs.

Beyond 2030

When asked to consider the meat processing sector's longer-term cold storage needs, respondents across the region held opposing views on whether demand would continue to increase or plateau. Two respondents noted that needs are plateauing, stating "things are returning to normal" post-pandemic, and inventories are shrinking. On the other hand, one respondent stated, "There is an increased need; if processors can access it, they will use it. " More than half of the participants (all in the Dakotas) suggested the demand for cold storage would increase. Their reasoning aligned with secondary source review findings, including:

- increased investment interest in cold storage
- increased home delivery and ecommerce purchases
- more processing facilities coming online
- increased demand

Despite a presumed need and strong investor interest, long lead times of 18 months or greater for new cold storage construction will be challenging.

Conclusions

Researchers identified the need for additional inquiry to understand the support mechanisms for smaller meat processors who are not interested in accessing commercial cold storage yet experience on-site capacity constraints. For those meat processors interested in commercial cold storage options, action is needed to facilitate regional economic development opportunities and build connections with local leaders, investors, consultants, logistics companies, utilities, and processors.

Acknowledgments

The Agricultural Research Institute (AURI) and The United States Department of Agriculture, Agricultural Marketing Services (USDA-AMS) would like to extend gratitude to all meat and poultry processors in the five-state region, finance working group members, regional advisory task force members, and other industry stakeholders that contributed to the efforts of the Empowering Local and Regional Meat Processors in the Upper Midwest Project.

This report was created in fulfillment of a cooperative research agreement between the United States Department of Agriculture Agricultural Marketing Service (USDA AMS) Local and Regional Foods Division (LRFD) and the Agricultural Utilization Research Institute (AURI). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA. USDA is an equal opportunity provider, employer, and lender.

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