17.0966.03000

FISCAL NOTE

Requested by Legislative Council
03/14/2017

Amendment to: SB 2330

1 A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2015-2017 Biennium		2017-2019 Biennium		2019-2021 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues			$(91,300)	$(8,700)		
Expenditures						
Appropriations						

1 B. **County, city, school district and township fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

	2015-2017 Biennium	2017-2019 Biennium	2019-2021 Biennium
Counties			
Cities			
School Districts			
Townships			

2 A. **Bill and fiscal impact summary:** *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

First engrossed SB 2330 with House Amendments imposes a 3% gross receipts tax for machinery and equipment installed into a dairy farm.

B. **Fiscal impact sections:** *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

If enacted, first engrossed SB 2330 with House Amendments authorizes a gross receipts tax rate of 3% for equipment installed into dairy farms but does not include building materials. Assuming there are two new large scale dairy operations, and a few upgrades to existing operations, the provisions of engrossed SB 2330, may result in a reduction in state general fund and state aid distribution fund revenues of up to $100,000 in the 2017-19 biennium.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation or a part of the appropriation is included in the executive budget or relates to a continuing appropriation.*

Name: Kathryn L. Strombeck
Agency: Office of Tax Commissioner
Telephone: 701.328.3402
Date Prepared: 03/15/2017

17.0966.02000

FISCAL NOTE

Requested by Legislative Council
02/07/2017

Revised
Amendment to: SB 2330

1 A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2015-2017 Biennium		2017-2019 Biennium		2019-2021 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues			$(91,300)	$(8,700)		
Expenditures			$150,000			
Appropriations						

1 B. **County, city, school district and township fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

	2015-2017 Biennium	2017-2019 Biennium	2019-2021 Biennium
Counties			
Cities			
School Districts			
Townships			

2 A. **Bill and fiscal impact summary:** *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

Engrossed SB 2330 imposes a 3% gross receipts tax for machinery and equipment installed into a dairy farm.

B. **Fiscal impact sections:** *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

If enacted, engrossed SB 2330 authorizes a gross receipts tax rate of 3% for equipment installed into dairy farms but does not include building materials. Assuming there are two new large scale dairy operations, and a few upgrades to existing operations, the provisions of engrossed SB 2330, may result in a reduction in state general fund and state aid distribution fund revenues of up to $100,000 in the 2017-19 biennium.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

Based on information provided by the Department of Agriculture, there will be $150,000 of expenditures associated with the study requirement contained in Section 2 of Engrossed SB 2330.

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation or a part of the appropriation is included in the executive budget or relates to a continuing appropriation.*

Name: Kathryn L. Strombeck
Agency: Office of Tax Commissioner
Telephone: 701.328.3402
Date Prepared: 02/10/2017

17.0966.02000

FISCAL NOTE

Requested by Legislative Council
02/07/2017

Amendment to: SB 2330

1 A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2015-2017 Biennium		2017-2019 Biennium		2019-2021 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues			$(91,300)	$(8,700)		
Expenditures						
Appropriations						

1 B. **County, city, school district and township fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

	2015-2017 Biennium	2017-2019 Biennium	2019-2021 Biennium
Counties			
Cities			
School Districts			
Townships			

2 A. **Bill and fiscal impact summary:** *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

Engrossed SB 2330 imposes a 3% gross receipts tax for machinery and equipment installed into a dairy farm.

B. **Fiscal impact sections:** *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

If enacted, engrossed SB 2330 authorizes a gross receipts tax rate of 3% for equipment installed into dairy farms but does not include building materials. Assuming there are two new large scale dairy operations, and a few upgrades to existing operations, the provisions of engrossed SB 2330, may result in a reduction in state general fund and state aid distribution fund revenues of up to $100,000 in the 2017-19 biennium.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation or a part of the appropriation is included in the executive budget or relates to a continuing appropriation.*

Name: Kathryn L. Strombeck
Agency: Office of Tax Commissioner
Telephone: 701.328.3402
Date Prepared: 02/08/2017

17.0966.01000

FISCAL NOTE

Requested by Legislative Council
01/23/2017

Bill/Resolution No.: SB 2330

1 A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2015-2017 Biennium		2017-2019 Biennium		2019-2021 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues			$(228,000)	$(22,000)		
Expenditures						
Appropriations						

1 B. **County, city, school district and township fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

	2015-2017 Biennium	2017-2019 Biennium	2019-2021 Biennium
Counties			
Cities			
School Districts			
Townships			

2 A. **Bill and fiscal impact summary:** *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

SB 2330 creates a sales tax exemption for materials and equipment used on a licensed dairy farm.

B. **Fiscal impact sections:** *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

If enacted, SB 2330 will create a sales and use tax exemption for materials and equipment used in the construction of dairy farms as well as expansions of existing dairy farms. There are currently 84 dairy producers in the state that may qualify for this exemption if they upgrade equipment or utilize qualifying materials. Any new operations that may be started would be able to purchase and install their equipment tax free which may result in a savings of up to $100,000 each, for large scale new dairy operations. Assuming there are two new large scale dairy operations, and a few upgrades to existing operations, SB 2330, if enacted, may result in a reduction in state general fund and state aid distribution fund revenues of up to $250,000 in the 2017-19 biennium.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation or a part of the appropriation is included in the executive budget or relates to a continuing appropriation.*

Name: Kathryn L. Strombeck

Agency: Office of Tax Commissioner

Telephone: 701.328.3402

Date Prepared: 01/30/2017

2017 SENATE JUDICIARY

SB 2330

2017 SENATE STANDING COMMITTEE MINUTES

Finance and Taxation Committee
Lewis and Clark Room, State Capitol

Senate Bill 2330
1/30/2017
Job #: 27566

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Dana Bellamy

Explanation or reason for introduction of bill/resolution:

A bill relating to a sales and use tax exemption for milking equipment & materials purchased for use on a licensed dairy farm; & to provide an effective date

Minutes: Attachment #: 1, 1A, 1B, 1C, 1D, 1E, 2

Chairman Cook: All Senators present. Opened the hearing on SB 2330.

(0:01:00-0:06:00) Senator Wanzek, District 29: presented testimony #1 in support of SB 2330. Handed out attachment #1A.

Was asked if the land in North Dakota is more valuable for farming then with cattle. Is it a losing battle for North Dakota?

(0:06:01-0:10:55) Referenced attachment #1A. Absolutely not, the Dakotas are the most profitable area. One of the reasons why could be our current farm ownership laws. More wide open space, less expensive feed costs. The price of milk is higher in this region. One of the more profitable areas to be dairy farming. Eastern part of the state has high quality of land and acreage. His brother met a farmer from Wisconsin. The man from Wisconsin had around 8000 acres of crop. Within his farm, in a 15-mile radius, there were over a 100,000 dairy cows. Every acre that he grew went to the dairy farms. He didn't have to pay for it to be exported. It would add opportunity and value to some local farms near dairy farms. North Dakota has a ton of potential. There has been interest in processing projects and farms coming in.

Chairman Cook: What has South Dakota done to turn theirs around?

(0:11:00-0:12:15) Senator Wanzek: They changed their corporate farming law about 8 years ago. They didn't have restrictions on land ownership size. The folks in the dairy industry want to invest in the cows, the assets that have a higher rate of turnover. They're not looking to build a land empire. They're looking to build a successful dairy farm. North Dakota citizen has a dairy farm that owns three times what the whole state owns in another state. He's got about 40,000 cows, and there's about 16,000 here.

(0:12:15-0:16:25) Brief discussion about bordering states on whether or not they have a sales tax exemptions, milk advisory board, or milk producers.

Vice Chairman Bekkedahl: High base of irrigated crop area and people looking for another option. If you can bring in the large dairies, you also have the opportunities for feed, forage, ethanol plants, cheese plants, all factories follow. Value added for our system. Where are the two current processing plants?

Senator Wanzek: One in Fargo and one in Bismarck.

Vice Chairman Bekkedahl: Where are all of the distiller grains going from the ethanol plants?

Senator Wanzek: Shipped out of state, possibly overseas. Rural North Dakota could grow through technology type products. There is room to expand and grow within our own ag industry. Our states animal agriculture proceeds are only about 15% of total proceeds. The surrounding states are more like 50/50. One small effort to try to get the statement, not going to turn the industry around, but could tell the rest of the producers that we welcome these types of projects.

Chairman Cook: Has the state ever done an in depth study, of what is the difference between North Dakota and other states that seem to drive our dairy away.

Senator Wanzek: The Department of Agriculture can provide a full copy of the study. **(Full copy was received 1/31/2017 and is attached as Attachments 1B, 1C, 1D, and 1E).** This is an executive summary so they didn't want to have the cost of producing a whole bunch of reports. A number of dairies that are interested in moving. Look at California, and the regulations they're imposing, like a tax on cow flatulence. Next generation is going to be looking to go somewhere and most of the farms are family owned business.

(0:23:22-0:24:20) Dwane Wanzek: Has had a dairy for over 35 years, couple of years ago decided to upgrade and installed 5 robots. The costs were considerable. The savings we would have received with a tax incentive like that would have saved $100,000 or more. We enjoy dairy and would like to see more dairies. Or existing dairies expand.

Senator Dotzenrod: A lot of the discussion we have about the dairy business is why are North Dakota and South Dakota so different. If you get paid more in North Dakota how come it can't get any traction.

Dwane Wanzek: You've got to have a market for your milk. That's the place where it needs to grow is the processing facilities. It's hard to say if the cows or the processing facilities need to come first. South Dakota has more processing facilities.

Chairman Cook: The dairy farmers are getting out of the business and pretty soon the processing plants follow.

Dwane Wanzek: Anybody that would want to start up, the milk would most likely go to cheese versus to the milk market for bottling. It's a higher pay for the milk to go to bottling than for cheese.

Chairman Cook: Taxes are very important when it comes to making investment decisions. Sales tax is just one part of the picture, another thing called property tax. When you compare your taxes to one in Iowa or South Dakota, we offer a very attractive incentive. South Dakota taxes them as commercial property. So there's something else going on besides the taxes.

Bob Hintz, Flasher: Runs a dairy farm with his wife and two sons, 23 and 19. They've committed to be at home because it's the life they want. Currently milking 120 cows, need to grow, if go beyond what they do now it's either hire help, or find an alternative way of milking. Anticipating putting in robots with the expansion of their herd to 240 (4 robots, 3-million-dollar investment). In order to do it, everyone needs to be committed. Lots of farms going to farm in South Dakota. Look at the grain markets and grain commodities. Animal agriculture substantially benefits the grain farmer because of the feed used, it adds value to what is grown. Surrounding states, who compliment animal culture, how well they're doing. North Dakota continues to lose dairies, losing the kids, because the kids are moving out. The kids can't wait until the cows were gone. Those of us still in it, we're committed to the heart. Very, very few industries that are willing to put the investment into something like we do. We have very little free time, in order to upgrade technology. Why can't we, as dairy farmers, invest in technology to help us when it comes at a high price. Grain farmers with the costs and the equipment, it's similar to us. To milk 240 cows, hired help isn't the complete answer because of the commitment involved we have to have reliable help. Investing in robotic technology would allow one person to milk the 240 cows. It becomes cow management; it does an excellent job beyond the efficiency of what is done now.

Tax break would be a statement that the state is behind the dairy industry. It's huge, 5% of 3 million is $150,000. To us that's huge, it isn't like there are 5,000 dairies going to invest this kind of money. Everyone talks about bringing in the outside diaries. It's not about bringing in outside dairies; it's about keeping the North Dakota dairy industry alive.

Sales tax incentive, in order for them to get the robots, they have to go to Minnesota. Minnesota doesn't charge sales tax. They're not avoiding a vendor within our state, they have to go out of state. Getting penalized by adding a tax to agriculture. 3% sales tax on new machinery, used is 0%. Dairy equipment isn't even considered agriculture equipment and is taxed at full 5%.

No other industry in the world that can generate that type of revenue from the core business. Dairy in North Dakota is huge. Don't think we should look the other way.

Dairy equipment is not considered agricultural equipment because it's attached, it becomes a permanent asset. Would automation tax credits count as going to robotics?

Would corporate laws doing anything to assist? As the farms dwindle in numbers, threatens the processing, if the processing plants leave, freight drop. Milk was shipped to South Dakota, $2 a 100 weight freight cost. When milk is at $10-$12 and you take $2 off, there isn't much left. The days of milking 30-40 cows can't generate enough income to survive.

Chairman Cook: If you were to expand your business, you can sell that milk?

Bob Hintz: Yes, we have a solid stable market. Because of the fact that they are a closed cooperative, only got in because someone else quit. We are paid the best from anyone. We are very fortunate; their current price is a little over 19. Spent 2 years working on the project, nobody wanted to invest because the economy is down. Now is the time, it takes a long time to build the facilities. It's a huge commitment.

Senator Laffen: Your opinion on why it's not growing in North Dakota? About a 4th of our farmland is never going to be dairy. They're a little bit warmer. What is the difference in your mind?

Bob Hintz: Go down 1-29, very fertile, productive to raising feed, North Dakota is also very productive. SD was behind the farmers; they didn't say the manure would stink too much. Gave them incentives to grow there. We're importing milk. Animal agriculture subsides grain projects and its value added. If we lose the industry, where are we going to go. We need outside people coming in, but what about those of us that are here.

(0:43:00-0:45:00) Shaun Quissell, Division Director, Livestock Development, North Dakota Department of Agriculture (NDDA): presented testimony #2 in support of SB 2330.

(0:45:05-0:49:35) Discussion on why South Dakota dairy is more productive than North Dakota. Questions were posed as to the difference between North Dakota and South Dakota tax changes.

Myles Vosberg, Director, Tax Administration Division, Tax Commissioner's Office: The department is neutral on the policy decision, but it is rather vague. Would like to see a better definition as it's somewhat vague.

Closed the hearing on SB 2330.

2017 SENATE STANDING COMMITTEE MINUTES

Finance and Taxation Committee
Lewis and Clark Room, State Capitol

Senate Bill 2330
2/6/2017
Job #: 27910

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Dana Bullamy

Explanation or reason for introduction of bill/resolution:

A BILL relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

Minutes: Attachment #1

(0:00:00-0:01:05) Chairman Cook told the committee to study over the information received last week on SB 2330 so that work can be done on it later. (Attachment #1)

(0:01:06-0:02:05) Bills being held will be released today. Listed the bills each Senator has to carry to the floor.

(0:02:06-0:03:25) Christmas tree versions were requested for the next day's committee meeting. Previous amendments are going to be implemented into the new Christmas tree version.

(0:03:26-end) Blank

2017 SENATE STANDING COMMITTEE MINUTES

Finance and Taxation Committee
Lewis and Clark Room, State Capitol

Senate Bill 2330
2/6/2017
Job #: 27941

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Jana Bellamy

Explanation or reason for introduction of bill/resolution: A bill relating to a sales and use tax exemption for milking equipment & materials purchased for use on a licensed dairy farm; & to provide an effective date

Minutes: Attachments #: 1, 2, 3, 4

Chairman Cook: Called the committee to order. All Senators present.

(0:00:20-0:01:30) Senator Unruh presented proposed amendments (Attachment #1)

(0:01:31-0:16:05) Committee discussion followed with clarification from the Tax Department.

(0:16:05-0:17:40) Senator Laffen presented an amendment for a study (Attachment #2)

(0:17:42-0:18:05) Committee discussion on the proposed study amendment.

(0:18:10-0:20:37) Discussion on the amendments being written.

Senator Unruh moved to include the definition of tangible personal property from attachment #1 to the excise farm machinery definition.

Vice Chairman Bekkedahl seconded.

A Voice Vote was taken. Motion Passed.

Senator Laffen moved to include the study by the agriculture commissioner.

Senator Unruh seconded.

A Voice Vote was taken. Motion Passed.

Senator Laffen moved a Do Pass, as Amended, with a rereferal to Appropriations. (Attachment #4)

Senator Unruh seconded.

A Roll Call Vote was taken. 6 yeas, 0 nays, 0 absent. Motion passed.

Senator Dotzenrod will carry the bill.

Chairman Cook requested a revised fiscal note. (Received 2/7/17 Attachment #3)

Prepared by the
Office of State Tax Commissioner
January 31, 2017

PROPOSED AMENDMENTS TO SENATE BILL NO. 2330

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to amend and reenact subsection 4 to section 57-39.2-04.4 of the North Dakota Century Code, relating to the definition of agricultural commodity processing facilities; and to provide an effective date.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. AMENDMENT. Subsection 4 to section 57-39.2-04.4 of the North Dakota Century Code is amended and reenacted as follows:

4. For purposes of this section, the following definitions apply:
   a. "Agricultural commodity processing facility" means buildings, structures, fixtures, and improvements used or operated primarily for the processing or production of marketable products from agricultural commodities. The term includes a facility that is used directly and exclusively for the milking operation of a dairy farm. The term does not include a facility that provides only storage, cleaning, drying, or transportation of agricultural commodities.
   b. "Facility" means each part of the facility which is used in a process primarily for the processing of agricultural commodities, including receiving or storing agricultural commodities; transporting the agricultural commodities or product before, during, or after the processing; or packaging or otherwise preparing the product for sale or shipment. For a dairy farm milking operation, facility means the buildings and structures where milk is extracted, collected, and stored prior to removal for sale or processing.
   c. "Tangible personal property" includes machinery, equipment, and structural materials, used directly and exclusively in, or incorporated into the structure of, a facility for the collection, handling, storage, heating, cooling, and waste handling and disposal related to a milking operation of a dairy farm, including replacement machinery, equipment, or construction materials, but does not include tools or machinery used to construct an agricultural commodity processing facility, and does not include machinery or equipment exempted under section 57-39.2-04.3.

DRAFT PROPOSED AMENDMENTS TO SENATE BILL NO. 2330
(Prepared by Legislative Intern Brady Pelton at the request of the Senator Laffen)

Page 1, line 1, after "A BILL" replace the remainder of the bill with "to provide for a study by the agriculture commissioner and to provide for a report to the legislative management.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. STUDY – AGRICULTURE COMMISSIONER – REPORT TO LEGISLATIVE MANAGEMENT.

During the 2017-18 interim, the agriculture commissioner shall study state dairy operations, with the intent of identifying ways by which to increase the number of dairy operations in the state. The study must include a review of current dairy industry practices, general dairy industry best practices, and tax policy related to dairy operations. The study must also comparatively analyze the differences between North Dakota and South Dakota dairy operations, including analysis of land type, land use, geography, climate, dairy commodity pricing mechanisms, dairy farm property tax assessments, and the sales and use taxes related to milking equipment and materials purchased for use on a licensed dairy farm. The agriculture commissioner shall provide a report with recommendations to the legislative management regarding the results of his study by June 30, 2018.

Renumber accordingly

ET

17.0966.01001
Title.02000

Adopted by the Finance and Taxation Committee

February 6, 2017

2-6-17

p. 1 of 1

PROPOSED AMENDMENTS TO SENATE BILL NO. 2330

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to amend and reenact subsection 2 of section 57-39.5-01 of the North Dakota Century Code, relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. AMENDMENT. Subsection 2 of section 57-39.5-01 of the North Dakota Century Code is amended and reenacted as follows:

2. "Farm machinery" means all vehicular implements and attachment units, designed and sold for direct use in planting, cultivating, or harvesting farm products or used in connection with the production of agricultural produce or products, livestock, or poultry on farms, which are operated, drawn, or propelled by motor or animal power. <u>"Farm machinery" also includes machinery, equipment, and structural materials used directly and exclusively in, or incorporated into the structure of, a facility for the collection, handling, storage, heating, and cooling related to a milking operation of a dairy farm.</u> "Farm machinery" does not include vehicular implements operated wholly by hand or a motor vehicle required to be registered under chapter 57-40.3. "Farm machinery" does not include machinery that may be used for other than agricultural purposes, including tires, farm machinery repair parts, tools, shop equipment, grain bins, feed bunks, fencing materials, and other farm supplies and equipment.

SECTION 2. STUDY - AGRICULTURE COMMISSIONER - REPORT TO LEGISLATIVE MANAGEMENT. During the 2017-18 interim, the agriculture commissioner shall study state dairy operations, with the intent of identifying ways by which to increase the number of dairy operations in the state. The study must include a review of current dairy industry practices, general dairy industry best practices, and tax policy related to dairy operations. The study must also comparatively analyze the differences between North Dakota and South Dakota dairy operations, including analysis of land type, land use, geography, climate, dairy commodity pricing mechanisms, dairy farm property tax assessments, and the sales and use taxes related to milking equipment and materials purchased for use on a licensed dairy farm. The agriculture commissioner shall provide a report with recommendations to the legislative management regarding the results of the study by June 30, 2018.

SECTION 3. EFFECTIVE DATE. This Act is effective for taxable events occurring after June 30, 2017."

Renumber accordingly

Date: 2-6-17
Roll Call Vote #: 1

2017 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

Senate Finance and Taxation Committee

☐ Subcommittee

Amendment LC# or Description: Attachment #1 Section 1 4c

Recommendation: ☑ Adopt Amendment
☐ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐ _____

Motion Made By Unruh Seconded By Bekkedahl

Senators	Yes	No	Senators	Yes	No
Chairman Dwight Cook			Senator Jim Dotzenrod		
Vice Chair Brad Bekkedahl					
Senator Lonnie J. Laffen					
Senator Jessica Unruh					
Senator Scott Meyer					

Total (Yes) _____ No _____

Absent _____

Floor Assignment _____

Passed

If the vote is on an amendment, briefly indicate intent:

Date: 2-6-17
Roll Call Vote #: 2

2017 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

Senate Finance and Taxation Committee

☐ Subcommittee

Amendment LC# or Description: Attachment #2

Recommendation: ☒ Adopt Amendment
☐ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐ _____

Motion Made By Laffen Seconded By Unruh

Senators	Yes	No	Senators	Yes	No
Chairman Dwight Cook			Senator Jim Dotzenrod		
Vice Chair Brad Bekkedahl					
Senator Lonnie J. Laffen					
Senator Jessica Unruh					
Senator Scott Meyer					

Total (Yes) _____ No _____

Absent _____

Floor Assignment _____

Passed

If the vote is on an amendment, briefly indicate intent:

Date: 2-6-17
Roll Call Vote #: 3

2017 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

Senate Finance and Taxation Committee

☐ Subcommittee

Amendment LC# or Description: 17.0966.01001 Title.02000

Recommendation: ☐ Adopt Amendment
☒ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☒ As Amended ☒ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐ _____

Motion Made By Laffen Seconded By Unruh

Senators	Yes	No	Senators	Yes	No
Chairman Dwight Cook	X		Senator Jim Dotzenrod	X	
Vice Chair Brad Bekkedahl	X				
Senator Lonnie J. Laffen	X				
Senator Jessica Unruh	X				
Senator Scott Meyer	X				

Total (Yes) 6 No 0

Absent 0

Floor Assignment Dotzenrod

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2330: Finance and Taxation Committee (Sen. Cook, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** and **BE REREFERRED** to the **Appropriations Committee** (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). SB 2330 was placed on the Sixth order on the calendar.

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to amend and reenact subsection 2 of section 57-39.5-01 of the North Dakota Century Code, relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. AMENDMENT. Subsection 2 of section 57-39.5-01 of the North Dakota Century Code is amended and reenacted as follows:

2. "Farm machinery" means all vehicular implements and attachment units, designed and sold for direct use in planting, cultivating, or harvesting farm products or used in connection with the production of agricultural produce or products, livestock, or poultry on farms, which are operated, drawn, or propelled by motor or animal power. <u>"Farm machinery" also includes machinery, equipment, and structural materials used directly and exclusively in, or incorporated into the structure of, a facility for the collection, handling, storage, heating, and cooling related to a milking operation of a dairy farm.</u> "Farm machinery" does not include vehicular implements operated wholly by hand or a motor vehicle required to be registered under chapter 57-40.3. "Farm machinery" does not include machinery that may be used for other than agricultural purposes, including tires, farm machinery repair parts, tools, shop equipment, grain bins, feed bunks, fencing materials, and other farm supplies and equipment.

SECTION 2. STUDY - AGRICULTURE COMMISSIONER - REPORT TO LEGISLATIVE MANAGEMENT. During the 2017-18 interim, the agriculture commissioner shall study state dairy operations, with the intent of identifying ways by which to increase the number of dairy operations in the state. The study must include a review of current dairy industry practices, general dairy industry best practices, and tax policy related to dairy operations. The study must also comparatively analyze the differences between North Dakota and South Dakota dairy operations, including analysis of land type, land use, geography, climate, dairy commodity pricing mechanisms, dairy farm property tax assessments, and the sales and use taxes related to milking equipment and materials purchased for use on a licensed dairy farm. The agriculture commissioner shall provide a report with recommendations to the legislative management regarding the results of the study by June 30, 2018.

SECTION 3. EFFECTIVE DATE. This Act is effective for taxable events occurring after June 30, 2017."

Renumber accordingly

2017 SENATE APPROPRIATIONS

SB 2330

2017 SENATE STANDING COMMITTEE MINUTES

Appropriations Committee
Harvest Room, State Capitol

SB 2330
2/13/2017
Job # 28255

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Mary Muncer for Rose Laning

Explanation or reason for introduction of bill/resolution:

Relating to the definition of farm machinery; to provide for a study by the agriculture commissioner.

Minutes: Testimony Attached # 1.

Legislative Council: Adam Mathiak
OMB: Becky Keller

Chairman Holmberg called the committee to order on SB 2330.
Fiscal note – nothing to do with appropriation

Senator Wanzek, State Senator, District 29, Jamestown, ND
Bill Sponsor.
This bill came to my attention as I want to help the dairy industry. Our state has been in decline in dairy industry. I got an e-mail from a former dairy specialist in the department of Ag. Gary Hoffman, and it said it's troubling to see the industry in other states. MN and WI, milk production was up and no mention of ND. The dairy coalition went with the state of SD thru APUC grant and indicated that the Dakotas are one of the best places in the nation for dairy.
Why is our dairy industry going backwards? My cousin is one of the remaining 83 dairy producers. He made investment in robots in his dairy barn. I was taken aback, that he pays full 5% sales tax on milk production when robots are considered machinery.
It's the same as other farm machinery and should be 3% or exempted. Robots, stainless steel wash tanks, sub-committee amended it to all farm equipment. The fiscal note, I can't believe it will cost the state at all, if anything unless a new dairy is built or an investment into a current dairy.
Dairy industry, more than any other agricultural enterprise, turns the dollar over in the local community, meeting feed activity and all else associated with the dairy. It leads to the chicken and egg, what comes first, the dairy or the processing plants. There has been some interest in the processing plants coming in but there is no dairy. That's for the experts to figure out. This will be a small statement to say we haven't given up on the dairy industry.

Chairman Holmberg: The reason we got the bill was because there was going to be another fiscal note coming down. It has nothing to do our committee.

Senator Wanzek: Do we still have the old fiscal note?

Chairman Holmberg: Yes, it was for $91,000. They added $150,000 on the new one.

Senator Wanzek: I don't see how we will give up anything. We haven't been going in that trend. It's a small investment the state can make. Try to get some more dairy farms going.

Chairman Holmberg: If I'd known now what I knew then, I'd have cancelled the hearing.

Senator Hogue: As I read the amendment, would that include any building structures. But it excludes bunks and grain bins. Would a feed bunk be exempt if incorporated in a dairy corporation?

Senator Wanzek: In the initial draft and visiting with the tax department, they were asking what my intent was and it was meant to be exempting sales tax on hard costs of developing a dairy farm and the equipment that would be unique to a dairy farm. I was imagining the parlor, construction materials. I didn't want to expand it to the point where any barn would be exempt. They extended that farm machinery definition to try capture that, so as an example my cousin built a $3 million-dollar barn specifically for dairy and I was trying to be specific to hard costs of a dairy operation and equipment that is used for a dairy operation.

Senator Hogue: It causes me to wonder whether if we would be better served with a separate definition for what you are trying to accomplish.

Sean Quissell, Livestock Development Director, ND Department of Agriculture: I am here on behalf of Commissioner Doug Goehring and in support of SB 2330. Testimony attached #1. (11:52)

Chairman Holmberg: Questions? None. Closed the hearing on SB 2330.

Senator Wanzek: Moved a Do Pass.

Senator Bowman: Seconded the motion.

A Roll Call Vote was taken: 14 yeas, 0 nays, 0 absent.

Send back to Finance & Tax.

Senator Dotzenrod will carry.

Date: 2-13-17
Roll Call Vote #: 1

2017 SENATE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

Senate Appropriations Committee

☐ Subcommittee

Amendment LC# or Description:

Recommendation: ☐ Adopt Amendment
☒ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐

Motion Made By Wanzek Seconded By Bowman

Senators	Yes	No	Senators	Yes	No
Chairman Holmberg	✓		Senator Mathern	✓	
Vice Chair Krebsbach	✓		Senator Grabinger	✓	
Vice Chair Bowman	✓		Senator Robinson	✓	
Senator Erbele	✓				
Senator Wanzek	✓				
Senator Kilzer	✓				
Senator Lee	✓				
Senator Dever	✓				
Senator Sorvaag	✓				
Senator Oehlke	✓				
Senator Hogue	✓				

Total (Yes) 14 No 0

Absent 0

Floor Assignment F+T. Dotzenrud

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2330, as engrossed: Appropriations Committee (Sen. Holmberg, Chairman) recommends **DO PASS** (14 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). Engrossed SB 2330 was placed on the Eleventh order on the calendar.

2017 HOUSE FINANCE AND TAXATION

SB 2330

2017 HOUSE STANDING COMMITTEE MINUTES

Finance and Taxation Committee
Fort Totten Room, State Capitol

SB 2330
3/13/2017
29073

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Mary Brucker

Explanation or reason for introduction of bill/resolution:

A bill relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

Minutes: Attachments 1-3

Chairman Headland: Opened hearing on SB 2330.

Senator Wanzek: Introduced bill. See attachment #1 for his testimony. Ended testimony at 7:21. The bill has been amended to include a study by the Department of Agriculture. Just recently, the North Dakota Dairy Coalition in conjunction with the South Dakota Dairy Industry and South Dakota Ag Department have already done a study. I somewhat question the necessity of having another study. I have an executive summary of a study that has already been done by the Dairy Coalition. Distributed a copy of the study, see attachment #2.

Chairman Headland: I was going to ask you about the cost of the study. The fiscal note indicates it's going to cost the Department of Ag $150,000 to study it. Is that money within their budget today?

Senator Wanzek: From my understanding it is not in their budget. We are dealing with their budget now in the Senate Appropriations committee. I really question the necessity of it; it's already been fully studied.

Chairman Headland: Go ahead and tell us the biggest hindrance to dairy.

Senator Wanzek: It's the farm ownership laws we have in our state that make it very difficult. My cousin has a farm and he milks cows with robots. He has five robots and a new state of the art barn he built. I'm sure he spent at least $3 million plus on his operation. He's 60 years old and has a son in his 30s who is helping him. The problem with the law today is that he could legally form a LLC or a corporate structure and operate under today's law but his son could not participate. Who's going to take over this farm? It's going to take those kinds of arrangements.

Chairman Headland: In our last bill we decided whether to allow the Bank of North Dakota to choose to purchase REMI software and set up a state committee that would analyze it. Do you think analysis of our structure of business and how it pertains to dairy would be one of the first things we should study; the impact of our archaic laws?

Senator Wanzek: I think that would be an appropriate use of REMI.

Chairman Headland: It's going to do a lot of things for us.

Representative Hogan: I'm surprised we haven't done this before. Has it been considered before and not acted on?

Senator Wanzek: Not to my knowledge. It came to my attention because of my cousin who recently spent around the $300,000 range for each robot and he paid nearly $100,000 in sales tax just for the robots. These robots are harvesting milk. I was initially looking for an exemption to try and help the industry. The senate decided at the very least we should treat that machinery equally.

Representative Hogan: Do you think that's because of the 85-15% and they are just not as organized?

Senator Wanzek: I'm not really clear on the history of that. It's probably because they view the robot as a fixture of real estate. I would argue that it's machinery; it can be unbolted and moved to a different area in a different barn.

Representative Howe: You described the declining state of our dairy industry and you mentioned South Dakota is at 200 some farms. What's been South Dakota's trend line last decade, is that number also declining?

Senator Wanzek: Absolutely not. Their trend line is going up. They've been growing their industry and it's definitely been trending up. The department and the complete study has some of the numbers. I'm aware of at least three operations that didn't materialize because of our situation in our state in the last year.

Representative Howe: South Dakota does not have our family farming laws?

Senator Wanzek: They used to, but about 8-9 years ago they changed it. They didn't have restrictions on land ownership percentages and it has been pretty much taken off since then.

Representative Ertelt: You mentioned the equipment today would be part of the real estate, is that correct?

Senator Wanzek: Yes.

Representative Ertelt: If it is considered part of the real estate then I would assume there is probably a property tax exemption on that equipment?

Senator Wanzek: We are not speaking about property tax in this but you're correct, farm property is exempt from property tax.

Chairman Headland: Is there testimony in support?

Bob Hinz, Dairy producer in Flasher: I'm here today in support of this bill. I was the one that kind of started this bill. I have two sons who are living at home with us and plan to live at home with us so we need to grow. We researched many ways of expanding. The robot dairy is the one that seems to fit our operation the best, however, these come with a very high price tag. We were forced to go out of state to purchase this equipment because there are no vendors within our state that handles this equipment. We went to Minnesota to buy these and learned that they do not charge tax on agriculture but when we bring it back to North Dakota we will be charged. The robots cost about $200,000 a piece, the barn will cost about $1 million, we are anticipating around a $3 million project, and 5% of $3 million is $150,000 which is a lot of money. Up to this point, dairy has not even been considered agriculture. This equipment is no more attached than a tractor, truck, or any other farm equipment. It's all removable. I'm asking you to seriously look at dairy as not part of the real estate but as part of agriculture, like everything else is. This bill will significantly help us to expand our dairies to include our young people. Our dairies are not growing because our young people are all leaving the state, they are not staying on the farms. We need to give them incentives to stay so we can grow. If our young people don't stay we won't grow. This comes at a very high cost. To me, $3 million is all I have but I'm putting it out there to give my kids a chance to continue on. Dairy has been a very vibrant industry. A 100 cow dairy is equivalent to nine households when we're looking at our power companies. When we lose one farm it's equivalent to losing nine homes. This is the impact our industry has on our state because we cover such a wide array of areas; schools, colleges, animal health, feed, politicians, etc. Please consider this bill, not as an expense to the state but as an investment.

Chairman Headland: How many cows do you predict you will have with your expansion?

Bob Hinz: Between 240-250; we want to double our herd. One robot can only milk 60-65 cows. The goal is to reach 5,000 pounds of milk per robot per 24-hour period. The efficiency of this is beyond anything we have today. We work in a very labor intense industry. Rather than us physically milking the cows we will be managing the cows. Every industry in our nation has turned to new and better technology to do their jobs better and that's just what we're doing but it comes at a very high cost like all technology does. If Minnesota doesn't charge tax against agriculture, why do we? I understand it's been amended to at least include us where the rest of agriculture is, so that will really help.

Representative Howe: There are 80 some dairies in North Dakota. Can you give us some idea as to the number of other dairies that are going through this same situation as you, that has a second generation behind you and you need to update equipment and it's at a time when it's make or break to what the next step is?

Bob Hinz: That is the next step. Grandpa is tired of this and can't do it anymore. A lot of our farms have come to the point where it is either remodel or get out and a lot of them have been getting out because this is a huge investment, it's scary, and it's very risky. I'm willing to do it for my kids because if I don't, who will? It took at big decision for me to decide to

start over at my age. We're growing because at 120 cows I feel I can't supply enough income for myself and two more families plus pay off all of this debt. By going into robotic milking, it will enable us to handle the 240-250 cows without adding additional labor.

Representative Steiner: I'm really confused as to how the vote went. I thought the bill we passed out was good and it allowed people to expand for a couple different operations. I didn't understand the struggle with the family farms. From a farmer's perspective, are your neighbors voting against allowing changes in the farming business operation?

Bob Hinz: I feel the mentality of corporation looks at Walmart, etc. as corporations and not at farming corporations. Farming corporations are something new to our state. I wouldn't say my neighbors are against it because if you really understand what Senator Wanzek really wanted to do was not put Walmart on the land and I think that's what this bill turned in to.

Chairman Headland: I don't think the bill turned into that but that's the negative campaign that was placed forward.

Bob Hinz: That was placed on it, correct. Once the negative campaigning started against it the ball was rolling and it didn't get brought back to what the original bill was. We need more dairies in our state but there is one thing that we have seriously forgotten and that's those of us who are still here are the ones that need help too. We have to keep us going otherwise that infrastructure will completely erode.

Representative B. Koppelman: It's been pointed out that one of the biggest hindrances of the dairy industry is the corporate structure of the law. If you were to reduce the tax on the equipment you're buying for a new dairy operation or remodeling your dairy operation, do you think that's likely to be enough to incentivize people to do it who otherwise wouldn't do it without the 2% reduction?

Bob Hinz: Anything helps. Every little bit helps. To me, $40,000, $50,000, or $100,000 is a lot but to the legislative session is a small amount of money when we're talking millions. On a family farm $50,000 or $100,000 is a lot of money. I would like to see more but it's better than five.

Chairman Headland: I think the question should be why is it treated different than other farm equipment?

Bob Hinz: That's right. I was previously told that dairy equipment was considered part of a permanent asset because it was attached to the buildings. I think we made it clear that mentality really isn't correct.

Representative Schobinger: It looks to me that this bill is kind of leap frogging other farm operations. It has a specific carve out for structure materials and equipment where the definition on top for other farm operations seems to be vehicular implements and attachments. In line 14 it specifically carves out dairy farms for the equipment, structure, and materials. This session, this committee has been charged with allowing sunsets to expire for some pretty good things because of our state budget situation. Am I reading this bill right,

are we treating dairy operations different than other farm operations in this as it applies to what we call the definition of farm machinery?

Bob Hinz: Up to this point I feel we have been treated differently. All other farm machinery has been exempted or reduced, but ours hasn't been. I don't know of any other farm machinery that is still taxed at the full 5% rate but dairy equipment is.

Chairman Headland: Is there anything else? Is there further testimony in support?

Mark Dahl, Chairman of North Dakota Milk Producers and a dairy farmer: We are in support of this bill. It's some help to the industry although it doesn't have all the answers. In 2008 my son joined the operation with me and we built a new 100 cow free style barn that cost over $300,000 at that time. Two years later we added an automatic calf feeder, a robotic calf feeder, that feeds the babies 24 hours a day and that was another $24,000 investment. The technology is going to becoming a manager and not a laborer. When we put the automatic calf feeder in our death rate went down to under 3% and we've been doing that just about every year now. The Milk Producers support this bill.

Chairman Headland: Are there any questions? Further testimony in support?

Shaun Quissell, division director of livestock development for the North Dakota Department of Agriculture: Distributed written testimony in support. See attachment #3. Ended testimony at 34:44.

Representative Schobinger: It seems like we're doing a carve out for dairy farms in the definition of what is farm machinery. Why wouldn't we move dairy farm up into the top part of the bill instead of listing equipment, structure materials, and things like that? If we are treating them differently than other farm operations, we're probably going to see a bill next session that will come in and strike dairy farm then include every other farm operation in that definition to receive the same treatment. Maybe we should do that now if that's something we might see. As far as equipment, structural materials, and things like that, are the farm operations given the same treatment in other parts of the code? What is the reason we're needing this language here for this specific carve out for dairy farms?

Shaun Quissell: That's probably a better question for Senator Wanzek as he was the author of the bill.

Chairman Headland: Senator Wanzek, can you address the question?

Senator Wanzek: I will, but I will let Pete testify and then I will answer the questions.

Pete Hanebutt, North Dakota Farm Bureau: Our organization has policy that says we need to limit the growth of government and whittle back some of these tax incentives that you guys have been doing a great job on. We also have a policy that says we need to do whatever we can to expand animal agriculture in this state. I think this bill does that. I know some of the dairies are really struggling with this generational change. We need to figure out how we're going to keep dairy in the state. Obviously, South Dakota has a different structural law now and they are beating us to the punch on getting animal agriculture in that state compared

to what we are allowed to do here. Anything we can do to keep livestock in this state is great. The greater fear in my mind is we're going to be down to just a few dairies and we won't be able to support even the processing and all that. We are at a turning point in agriculture and we need to get after this. Any help we can do to keep animal agriculture in this state is great. This is a wonderful step for the dairy industry.

Chairman Headland: Would you agree that we already allowed our dairy industry to falter and we may be late in the game? We've tried in the past to look at our antiquated business structures and we all understand what happened in that campaign and the deceitful ads that were being run. Part of the problem is the fact that once you're a generation removed from that dairy it's just hard to get interest from people to look at it.

Pete Hanebutt: We've obviously slipped. We are continuing to whittle on the number of dairy farms in the state. We have chased confined animal agriculture away from this state. This would make such a fabulous state for animal agriculture that you can keep in a building and keep them warm throughout the winter time. With this bill I think we go a little way toward helping at least one of those segments. I hope you will go along with that.

Chairman Headland: Are there any questions?

Representative B. Koppelman: Senator Wanzek, was it your intention in this bill to give a tax reduction on the building supplies to build a barn?

Senator Wanzek: It was my intention initially to provide complete exemption. This industry is struggling and is seeing a downward trend so this was to provide special treatment for the dairy industry and try to get them turned around. In the process of amending that bill, it is still favorable towards the construction materials in building a new barn, unless I'm reading it wrong.

Representative B. Koppelman: In the fiscal note it does not say it includes building materials.

Senator Wanzek: It was the intent of the Senate Finance and Tax committee to get to the point of equal treatment. It was initially my intent to give them a special break and exempting them in a favorable way because of the concern for our dying industry.

Representative B. Koppelman: We now have allowed the automation tax credit to sunset. Do you know of any dairy farms that made use of that to automate?

Chairman Headland: They are not primary sector so they didn't qualify.

Senator Wanzek: We looked at a number of possible things to do and one of them was declaring them as a primary sector industry, but this is what we came up with for now. As Mr. Hinz said, anything helps. We are still trying to provide some help or relief for individuals, like Mr. Hinz, who are willing to make that investment.

Representative Hogan: I'm concerned about the "shall study" language in this bill and the $150,000 cost. Would you be open to making that…

Chairman Headland: He already stated he didn't think we needed to study it because it's already been studied.

Representative Hatlestad: The South Dakota model is apparently successful so could that be duplicated here?

Senator Wanzek: We tried but we had more restrictions. We had fear of corporations coming and buying up the land. We restricted any dairy or hog farm that would have used this farm ownership structure would have been limited to 640 acres owned and leased. In South Dakota, the farms are not interested in tying up their resources into land, they want to have assets mainly in cows and milking equipment where they turn it over a lot faster than land. Land is a resource that has a lower return and doesn't turn over the dollar as quickly as the other assets. Corporations are not coming in and buying up the state, they are working with local farmers and contractually agreeing with local farmers to produce their livestock's feed and haul the nutrients out. It has been a very positive thing and has helped the local farmers.

Representative Hatlestad: Does South Dakota have tax advantages that your bill is offering here to encourage the dairies?

Senator Wanzek: I don't know about South Dakota's sales taxes. Minnesota doesn't charge any tax. When you think about doing this in our state, know that 39 other states are already doing it. I want to do something to help and address animal agriculture.

Chairman Headland: I think it's amazing and appalling that our largest farm organization isn't here today after what they did. Is there further support? Is there any opposition? Myles, I have a question for you. Is the definition clear to you exactly what we're talking about? Do you know exactly what you'll be reducing the tax to 3% and what will remain at 5%?

Myles Vosberg, Office of State Tax Commissioner: In lines 13-14, I think it is clearly defined where it talks about machinery and equipment for the collection, handling, storage, heating, and cooling related to the milking. Right now, anything that's installed doesn't qualify for the reduced rate, it is subject to the 5% tax. This will reduce the rate from 5% to 3% on that installed equipment if it's used directly in the collection, handling, storage, heating, and cooling. We would be looking at the robotic equipment, the pipeline, the bulk storage tanks, and those kinds of things that are used directly in that process.

Chairman Headland: Would that type of equipment still be part of the taxable value when it comes to assessing?

Myles Vosberg: For property tax purposes, I don't believe it's ever been subject to property tax. Sales tax and property tax are not on an equal footing. For sales tax purposes, anything that's installed ends up being subject to the sales tax. For property tax, if it's removable those items have not been subject to property tax. I don't think there will be a change there.

Chairman Headland: Any other questions for Myles? We'll close the hearing on SB 2330.

Vice Chairman Dockter: I'm in favor of the bill. The only amendment I would look at is to take out the study, removing section 2. **MADE A MOTION TO AMEND BY REMOVING SECTION 2.**

Representative Howe: SECONDED

Chairman Headland: Discussion?

Representative Howe: Senator Wanzek said this was a study already. I think the study should almost be separate; it's two separate issues.

Chairman Headland: Any discussion?

ROLL CALL VOTE: 13 YES 0 NO 1 ABSENT
MOTION CARRIED

Representative Ertelt: Could we have Linda answer the question that was posed to Myles?

Linda Leadbetter: When we review property for assessment we determine whether it is an integral part of that structure. If that piece of equipment can be moved and it still remains a structure, it is a structure and we would not assess those individual components. We're not concerned with it remaining the type of business it had always been, it would be the idea that it's part of that structure and what made the structure a structure. At the level of the farm construction and structures on a farm, if they are part of a farm plant those facilities are tax exempt anyway.

Representative Ertelt: Whether it's remodeling or expansion of the building that would house the equipment, the building and the equipment would be tax exempt?

Linda Leadbetter: Yes, based on the structures on a farm plant then all structures are considered tax exempt if they are deemed part of a farming operation. The equipment would not be a consideration if it were part of a commercial operation, just because we would determine that to be personal property.

Representative Olson: Is farm property exempt from taxation in South Dakota or Minnesota?

Linda Leadbetter: I don't know.

Chairman Headland: Could you find that out for us though?

Linda Leadbetter: Absolutely.

Chairman Headland: We'll hold on to this one until we come back this afternoon.

2017 HOUSE STANDING COMMITTEE MINUTES

Finance and Taxation Committee
Fort Totten Room, State Capitol

SB 2330
3/13/2017
29101

☐ Subcommittee
☐ Conference Committee

Committee Clerk Signature Mary Brucker

Explanation or reason for introduction of bill/resolution:

A bill relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

Minutes: No attachments

Chairman Headland: Let's take a look at SB 2330.

Vice Chairman Dockter: We already amended this to take out the study. **MADE A MOTION FOR A DO PASS AS AMENDED.**

Representative Grueneich: SECONDED

Chairman Headland: Is there discussion?

Representative B. Koppelman: We eliminated the $150,000 expenditures out of the fiscal note. Corporate farming law is one of the obstacles for this to take off. They're assuming two major projects are going to go. If anything, the fiscal impact of this bill in the first biennium is probably less than the threshold for what we would otherwise have to send to appropriations.

Representative Mitskog: There's a big movement for large scale dairy in my area.

Representative Howe: We heard the gentleman testify that he was going to double his operation. I think this will expand the dairy farms. With new technology, one robot can milk 65 cows. I think that our 83 dairies will be looking to expand. I'm all for this.

Representative Steiner: I'm going to resist this. When we're talking robotics we are talking manufacturing. We treat farmers so differently in this state. We turn down the manufacturers. A robotic machine is manufacturing in a sense. Maybe we should look at primary sector business. It seems that we have special rules for one segment of our population. Baker Boy is using robotics and it is considered manufacturing so they are not eligible.

Chairman Headland: They didn't qualify; they weren't primary sector.

Representative Steiner: It seems we have special rules for certain sectors. The farming community turned down a solution to that. They need to bring forward a solution out of their own communities. I have sympathy for them but I'm going to resist it.

Chairman Headland: I would suggest it wasn't the farming community.

Representative Trottier: There was an understanding from the gentleman testifying that buildings wouldn't be included. If he's doing a $3 million expansion, I don't think it would qualify under this. The fiscal note would then be way out of line on this.

Representative Howe: We've talked all session long about giving away credits and tax incentives and I think we've done a good job with that. This is trying to help an industry that needs it and helping to expand that business.

Representative Mitskog: I appreciate your comments, Representative Howe. You keep tracking our revenues now and people think it's mostly oil but agriculture really comes into play. Ag is having a difficult time right now.

Representative Schobinger: I tend to agree with Representative Steiner. In other bills the definitions of things were pretty standard; telecommunications equipment, wind mills, etc. then you get to this and say farm machinery is farm machinery is farm machinery until we want it to mean something else for someone else then it's defined differently. I disagree with that. I'm voting no on this as well. If we had a standard definition of that and it applied to all farms, then it would be something I would vote for if I thought it would help all of them under that definition.

Representative Olson: I've been thinking about this bill regarding tax parity or tax equity and I'm looking at the existing definition of farm machinery. I think this bill is helping to more clearly define that to include the same thing for dairy.

Representative Schobinger: The answer would be to strike everything after "cooling" where it says "related to a milking operation and dairy farm" if we're really trying to create parity there. That might be a brand new fiscal note that would tell us something different than the fiscal note we have. That's probably why that wording ended up the way it did. This would create parity amongst all farmer machinery.

Chairman Headland: The cooling is related to the milking operation. I assume that would be a bulk tank.

Representative Olson: I see an area that is not even because we're going to exempt storage for dairy but we don't exempt storage for grain because grain bins are specifically excluded from this definition of farm machinery in lines 16-19.

Representative Grueneich: Representative Olson, the difference between grain storage is the way it is set up because grain storage is long term and dairy is very small and not designed to be held even overnight. Storage is very different in the dairy industry.

Chairman Headland: I think most of the large dairies don't have their own bulk storage anymore. The trucking company brings out the tanker and it sits there until its full.

Representative Ertelt: It's not necessarily long term storage either in a grain bin. They could be taken off the field and put in the bin for a short amount of time before they're able to take it to an elevator. I received an email from another dairy operation with 700 dairy cows. They are looking at retrofitting their operation with an $8 million investment and that would save them $160,000. This individual said they have trouble finding workers and this automation is the reason they want to consider doing that.

Chairman Headland: Part of the problem is finding people to work.

Representative Ertelt: That's the same argument we had from those that were arguing for automation tax credit too.

Representative Mitskog: It is very similar to the automation tax credit in the sense that the industry can't find labor but dairy can't even find Americans to do that type of work. Wisconsin has immigrant labor doing that because it's a challenge to find labor.

Representative B. Koppelman: When we had the automation tax credit and looked to see how many jobs and what the success with that had been, nobody showed up. When we asked for examples we received the saved jobs examples. I look at the automation tax credit as not being an opportunity to not hire more people.

Representative Howe: The purpose of this bill is to help the dairy industry just like the renaissance tax zone credit was to help the downtown revitalization. The main purpose of this is to help dairy, not every single farmer out there.

Chairman Headland: Agreed. I don't think it's fair to compare it to the automation tax credit which is a 20% income tax credit off your tax liability. This is a 2% reduction in the sales tax.

Representative Ertelt: From Linda Leadbetter's explanation the equipment would be exempt from property tax.

Chairman Headland: It already is.

Representative Ertelt: This is an additional a tax incentive.

Representative Olson: Real property is already exempt so this doesn't fall into the definition of real estate to be taxed.

Chairman Headland: Is there anything further?

ROLL CALL VOTE: 11 YES 3 NO 0 ABSENT

MOTION CARRIED FOR DO PASS AS AMENDED AND REREFER TO APPROPRIATIONS

Representative Howe will carry this bill.

****March 20, 2017:** It has since been determined this bill does not need to be re-referred to Appropriations per Chairman Headland.

3/13/17 DK

17.0966.02001
Title.03000

Adopted by the Finance and Taxation Committee

March 13, 2017

PROPOSED AMENDMENTS TO ENGROSSED SENATE BILL NO. 2330

Page 1, line 2, remove "; to provide for a study by the"

Page 1, line 3, remove "agriculture commissioner; to provide for a report to the legislative management"

Page 1, remove lines 20 through 24

Page 2, remove lines 1 through 6

Renumber accordingly

Date: 3-13-17
Roll Call Vote #: 1

2017 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

House Finance and Taxation Committee

☐ Subcommittee

Amendment LC# or Description: Remove section 2

Recommendation: ☒ Adopt Amendment
☐ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☐ As Amended ☐ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐ _____

Motion Made By Rep. Dockter Seconded By Rep. Howe

Representatives	Yes	No	Representatives	Yes	No
Chairman Headland	✓		Representative Hogan	✓	
Vice Chairman Dockter	✓		Representative Mitskog	A	
Representative Ertelt	✓				
Representative Grueneich	✓				
Representative Hatlestad	✓				
Representative Howe	✓				
Representative Koppelman	✓				
Representative Olson	✓				
Representative Schobinger	✓				
Representative Steiner	✓				
Representative Toman	✓				
Representative Trottier	✓				

Total (Yes) 13 No 0

Absent 1

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

Date: 3-13-17
Roll Call Vote #: 1

2017 HOUSE STANDING COMMITTEE
ROLL CALL VOTES
BILL/RESOLUTION NO. 2330

House Finance and Taxation Committee

☐ Subcommittee

Amendment LC# or Description: _____

Recommendation: ☐ Adopt Amendment
☑ Do Pass ☐ Do Not Pass ☐ Without Committee Recommendation
☑ As Amended ☑ Rerefer to Appropriations
☐ Place on Consent Calendar

Other Actions: ☐ Reconsider ☐ _____

Motion Made By Rep. Dockter Seconded By Rep. Grueneich

Representatives	Yes	No	Representatives	Yes	No
Chairman Headland	✓		Representative Hogan	✓	
Vice Chairman Dockter	✓		Representative Mitskog	✓	
Representative Ertelt		✓			
Representative Grueneich	✓				
Representative Hatlestad	✓				
Representative Howe	✓				
Representative Koppelman	✓				
Representative Olson	✓				
Representative Schobinger		✓			
Representative Steiner		✓			
Representative Toman	✓				
Representative Trottier	✓				

Total (Yes) 11 No 3

Absent 0

Floor Assignment Rep. Howe

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2330, as engrossed: Finance and Taxation Committee (Rep. Headland, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** and **BE REREFERRED** to the **Appropriations Committee** (11 YEAS, 3 NAYS, 0 ABSENT AND NOT VOTING). Engrossed SB 2330 was placed on the Sixth order on the calendar.

Page 1, line 2, remove "; to provide for a study by the"

Page 1, line 3, remove "agriculture commissioner; to provide for a report to the legislative management"

Page 1, remove lines 20 through 24

Page 2, remove lines 1 through 6

Renumber accordingly

REPORT OF STANDING COMMITTEE

SB 2330, as engrossed and amended: Finance and Taxation Committee (Rep. Headland, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (11 YEAS, 3 NAYS, 0 ABSENT AND NOT VOTING). Engrossed SB 2330, as amended, was placed on the Sixth order on the calendar.

Page 1, line 2, remove "; to provide for a study by the"

Page 1, line 3, remove "agriculture commissioner; to provide for a report to the legislative management"

Page 1, remove lines 20 through 24

Page 2, remove lines 1 through 6

Renumber accordingly

2017 TESTIMONY

SB 2330

Testimony on SB 2230
Senator Terry Wanzek

Good Morning Chairman Cook and members of the Senate Finance and Tax Committee. My name is Terry Wanzek, State Senator representing district 29, from Jamestown.

SB 2230 is a fairly simple request in logistical terms, but maybe a bit more complex politicall. . I know that it appears that tax credits are not in vogue this session. I know it is probably a difficult request to make at this time. I'll do my best to explain why I am asking for some yes votes on this bill.

First, let's talk about ND Dairy industry a bit. It has a long historical tradition in ND's rural agriculture community. I was told at one time we led the nation in the production of cream. At one time we had nearly 100,000 dairy cows and 1000 dairy farms in our state. As late as 15 years ago we still had 350 dairy farms and approximately 45000 dairy cows. Today we have only 86 dairy farms and 16000 cows. Since our last legislative session we lost 5 dairy farms, going down from 91 to 86. Contrast this to South Dakota, which is growing in numbers up to 255 farms and 94000 cows.

Dairy operations are said to be the most economically vibrant enterprise in agriculture. Our sister state's SD dairy studies show each dairy cow generates $14,042 dollars of economic impact to the local community each year. SD Dairy has a statewide economic impact of $1.28 billion annually. SD also has 10 processing plants while we have 2. And I understand we import milk to keep them operating.

SB 2230 is not going to be a cure all to our downward trend and dwindling dairy farms in the ND dairy industry. It will, though, provide some help to anyone who is willing to invest in ND and build a dairy farm. Any little bit will help. It will be a way for our state to say we welcome your investment into dairy farming. It can be a small effort from state government to help save our long rich history of dairy farming. This industry has been in serious decline.

It is the intent that only the hard costs of developing or expanding a dairy farm, building and construction materials and equipment unique to dairy, be exempt from sales tax. Not the day to day supplies etc. Not equipment, like a tractor which can be used in other farming situations, that has common purposes. I have not seen the fiscal note, but I believe it should not be very high as we have been loosing dairy farms not growing them. I feel we have little to lose by making an investment into this industry. If the tax exemption would be a tipping point to building or investing in a dairy farm, it will be a good investment from the state when we consider all the additional economic activity that will be created. Please give this idea and SB 2230 serious consideration. Thank you Mr. Chairman and Senate Finance and Tax Committee.

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A Vision for Dairy in the Dakotas – Executive Summary

A joint study between the North Dakota Dairy Coalition and the South Dakota Department of Agriculture has been completed by Blimling and Associates, Inc. of Madison, WI. The study was commissioned to:

I. Determine recent trends in the U.S. dairy industry.
II. Compare milk processing plant economics between regions.
III. Evaluate the strengths and weaknesses of the Dakotas.
IV. Provide strategies to move forward.

Milk supply growth and processing expansion around the U.S. is discussed in Section 1 of the study. A growth of 8% total milk output was realized in four regions in the U.S. between 2010 and 2015. An increase in milk supply drove the dairy processing expansions in the Mideast[1] and Wisconsin[2] regions. In the Southwest/Intermountain[3] region processing investment led milk supply growth. During that same time period, North Dakota had a decrease of 14% milk production and a loss of 5,000 cows, resulting in a delay of critical processing investment.

Section II of the study discusses the differences in financial returns between hypothetical processing plants in the Dakotas, Michigan and Colorado. The study focused on a 3 million pound-per-day milk plant, which would need milk from 40,000 to 45,000 cows, with analysis considering cheese/whey, butter/powder, and retail/branded products. The study estimates the return for a plant in the Dakotas would fall $10 million to $15 million short on an annual basis compared to similar plants in other regions. This is due to higher milk premium prices paid to Dakota region dairy farmers, which would increase the plant's input costs. Freight and distance to consumer population centers also increases the plant's product distribution costs.

Section III explores factors processors consider when investing in facilities. The study lists numerous advantages that make North Dakota appealing to processors:

- Provides a flexible milk pricing structure.
- Farm milk production varies less in the Dakotas (4% vs 12%) than in other areas, resulting in a more consistent milk supply.
- The Dakotas have consistently higher butterfat content due to the regions fewer days of high heat and humidity.

- The region presents a very positive business environment via multiple incentives provided at both state and local levels. These include those provided by the Bank of North Dakota, the U.S.'s only state-owned bank.
- Open spaces, reliable feed and water supplies to continue growing cow numbers and the region's milk supply.

The study also listed some barriers to the expansion of processing in the Dakotas:

- The Dakotas' milk prices, specifically the premiums, are among the highest in the country. This is appealing to dairy producers, but presents a challenge for processors due to the increased upfront cost.
- Fluctuation in consumer demand presents a management challenge in the Dakotas due to a lack of balancing capacity.
- Current land ownership laws are inhibitive to dairy farm growth.
- If North Dakota's dairy industry is allowed to continue its decline, expanding processing capacity will become increasingly challenging due to milk production and infrastructure loss.

Finally, Section IV states options to successfully attract new processing investments in North Dakota:

- Pursue smaller-scale, value-added processors such as specialty cheeses, yogurts, butter, or beverages. When integrated with local dairies, these processors can capitalize on the value and marketability of locally produced foods.
- Seek dairy producer-driven investment in processing operations, as seen in many other regions.
- Expand upon the government's incentives and assistance options.
- Discuss expansion and value-added product diversification opportunities with the state's current processors.

In conclusion, the study shows that North Dakota has the ability to sustain and expand the state's dairy industry through participation with local communities, state government and local investors to attract small to medium processing facilities. The new milk marketing opportunity will give North Dakota's current dairies the ability to grow, while attracting new dairy producers to the state.

For more information on the "A Vision for Dairy in the Dakotas" study, contact North Dakota Dairy Coalition spokesman Jerry Messer at jerm@ndsupernet.com or 701-290-1628.

1 – The Mideast region consists of Michigan and Indiana
2 – The Wisconsin region consists of the state of Wisconsin
3- The Southwest/Intermountain region consists of Colorado, Texas, and Kansas
4 – The Dakotas consists of North and South Dakotas

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A VISION FOR DAIRY IN THE DAKOTAS

Part I: Dairy Plant Investment Trends

Introduction

IN THE SUMMER OF 2015, OFFICIALS FROM NORTH AND SOUTH DAKOTA REALIZED THEY HAD A PROBLEM. OR MAYBE AN OPPORTUNITY.

Across the country, companies and government officials touted new dairy manufacturing facilities. Most were hundreds, if not thousands, of miles away. Dairy producers here are willing to expand and grow, that much is given. But why not build a new plant in the Dakotas? Answers were elusive.

Seeking to find some answers, and possibly forge a path forward, the North Dakota Dairy Coalition and the State of South Dakota combined to commission a study. The goals? Educate and inform dairy stakeholders about US trends in both milk production growth and plant investments. Review comparative economics in plant operations between regions. Evaluate the strengths and weaknesses of the Dakotas when it comes to attracting new investments. Provide some strategies about how to move forward. The study is organized in this manner. Four parts bound by a common theme.

HERE, PART I PROVIDES AN OVERVIEW OF MILK SUPPLY GROWTH AND DAIRY PROCESSING EXPANSIONS AROUND THE US. The stories of growth and investment vary noticeably between the Mideast, Southeast/Intermountain region, Wisconsin, and the Dakotas. In some regions, milk supply growth drove dairy processing expansion, but in others, milk closely followed processing investment. Milk production grew in the Dakotas in recent years, but new processing investments are lagging. Part II quantifies and compares financial returns between hypothetical plants located in South Dakota, Michigan, and Colorado. Since

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dairy plant location is about more than price, Part III explores other factors processors consider when making an investment decision. And finally, Part IV proposes options the states could consider to successfully attract new processing investment to the region.

This project is not all encompassing. It does not provide a step-by-step manual that will radically alter the current course overnight. Rather, the intent is to provide a clearly defined starting point. Summarize where the Dakotas fit into the broader US dairy landscape. Talk about the advantages and disadvantages a processor would enjoy or encounter by doing business in the region. And, when possible, quantify the economic costs of manufacturing dairy products in the Dakotas compared to other growing milk regions. With this research in hand, stakeholders will better understand the problem(s) to solve. More important, they may also begin to see the associated costs and possible pathways to get there. The findings should become a key input into future conversations and planning events, as the effort moves from the conceptual to actionable.

About the Authors

Blimling and Associates, author of this series, is a widely respected dairy consulting and research firm. The Blimling team combines extensive dairy/commodity market experience with economics/finance backgrounds. Intimate working knowledge of the market, detailed data analysis, exceptional critical thinking skills, numerous relationships around the world, and a demonstrated commitment to robust but clear communication power the Blimling client services platform. And, the team knows the region. Clients from the Dakotas have been on the customer list for 20 years. Additionally, since 2013 Blimling has been active in the region completing three separate rounds of research for the Midwest Dairy Association, including the seminal piece, *A Path Forward* from 2014. ■

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News Flash: US dairy producers continue to make more milk. In fact, between 2010 and 2015, US output increased 8%, or another 15.8 billion pounds. That's 865 more loads of milk per day available to the market than in 2010. Four main regions are driving growth: the Mideast (Michigan, Ohio and Indiana), the Southwest (Colorado, Texas, and Kansas), Wisconsin, and the Dakotas. In turn, these regions also captured major processing capacity investments.

"BETWEEN 2010 AND 2015, US OUTPUT INCREASED 8%, OR ANOTHER 15.8 BILLION POUNDS. THAT'S 865 MORE LOADS OF MILK PER DAY..."

Today, producers, state governments, and non-governmental agencies in the Dakotas are assessing and planning for dairy growth. And, the sense is that the region is losing out on the most highly coveted plant investment projects. A cursory overview of recent investments validates those fears. This analysis establishes a baseline of sorts, examining on-farm trends, documenting recent processing capacity investments, and reviewing the potential for regional expansion going forward.

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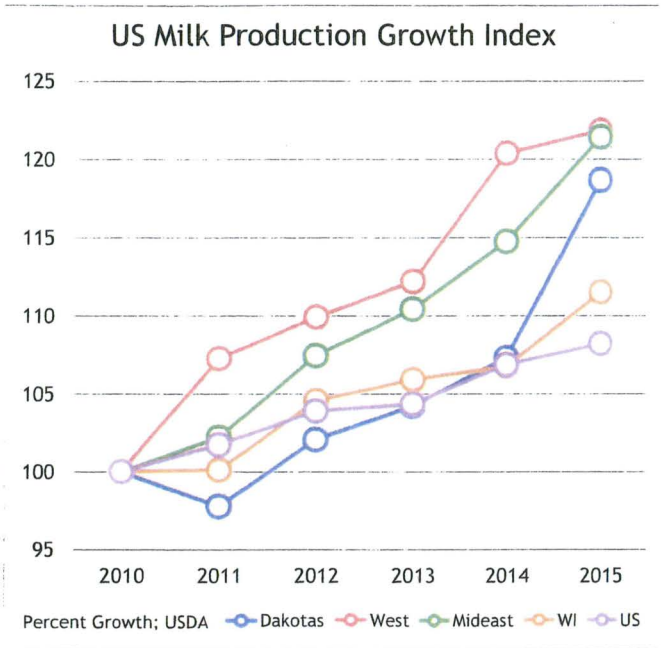
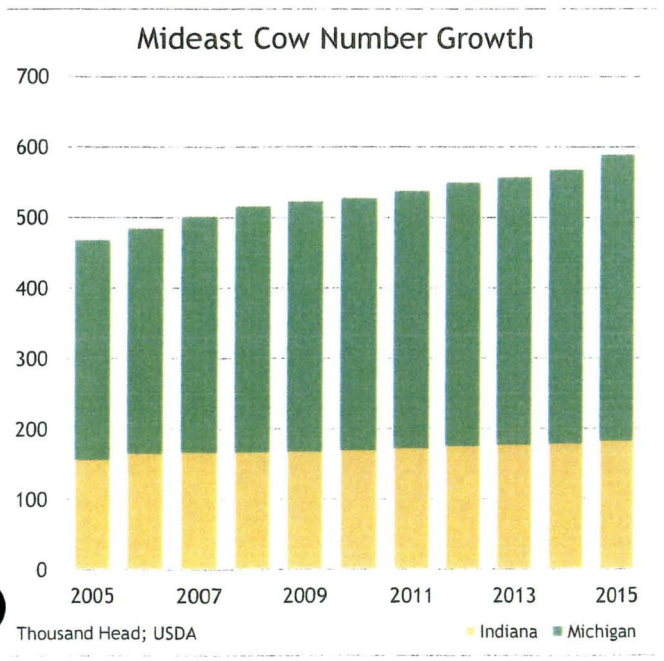
Dairy Plant Investment Trends

Mideast

Between 2010 and 2015, Mideast milk production expanded by 2.5 billion pounds (21%). Fueled by progressive, growth-minded producers, the region's dairy herd grew by 62,000 to reach 589,000 cows in 2015. Over the same period, the region lost 800 dairy farms, suggesting sizable growth on a small number of large dairies.

Michigan led the Mideast growth, with output increasing 5% per annum between 2010 and 2015. By the end of 2015, farmers in the region milked 49,000 more cows and produced 1.92 billion pounds (23%) more milk than in 2010. At the same time, productivity increased 8% to more than 25,160 pounds per cow per year. In fact, Michigan's cows grabbed the silver medal for productivity in the US during 2015, jumping five spots from 2011. Dairy cattle investment appears centered in both the "thumb" region as well as west-central Michigan. However, 2016's low milk prices and tight margins may stymie some near-term on-farm investment.





Indiana output also jumped. Between 2010 and 2015, annual production increased 598 million pounds (17%). At roughly 3% growth per year, annual Indiana milk production crept to 4 billion pounds by 2015. At the same time, cow numbers swelled by 12,000 cows. Similar to Michigan, the makeup of Indiana's dairy sector is shifting toward larger facilities. Since 2010, the average farm increased its herd by 50 cows to 150, while the total number of farms dropped by 450 to 1,120. Those trends should continue: more milk from fewer cows concentrated on larger farms.

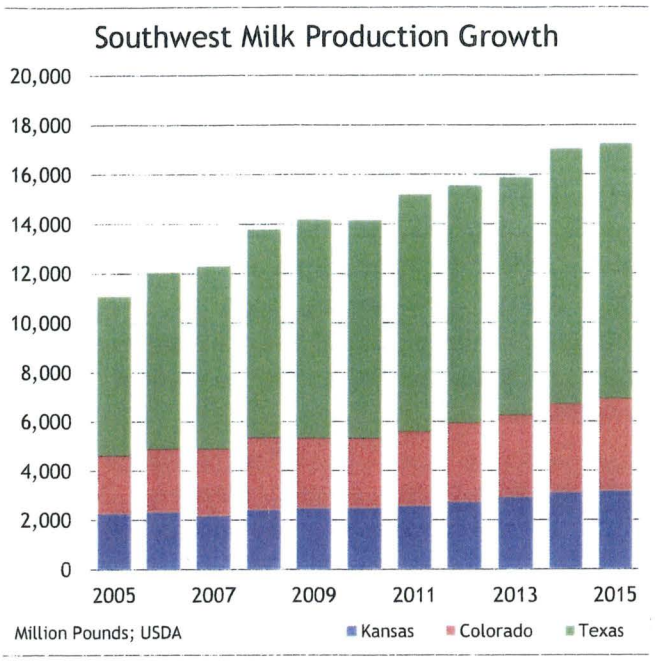
Southwest

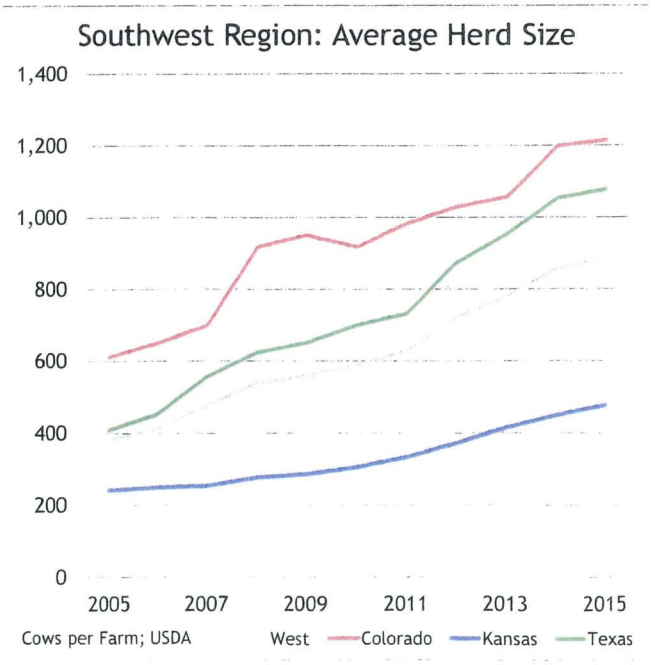
Spurred in part by expansion in processing capacity, regional production growth across Colorado, Texas, and Kansas combined topped 4% per year between 2010 and 2015. By 2015, annual output surpassed 2010 levels by nearly 3.1 billion pounds (22%).

Rapid growth in cow numbers is what sticks out in the region – a sign of large investments in new dairies. Between 2010 and 2015, the regional milking herd increased by about 101,000 cows. This

growth accounted for more than 50% of the total US increase in dairy cow numbers over the period. The region lost 260 dairy farm operations in five years. Yet, average herd size increased by an impressive 298 cows per farm to 884 cows – nearly four times the US average.

In 2010, Denver based Leprino Foods Company – the nation's largest producer of natural cheese - finalized plans to build its newest plant in Greeley, Colorado. Data shows that Colorado's milk production growth generally coincided with the plant's timeline. From 2010 to 2015, annual milk production grew by about 934 million pounds (33%) – increasing roughly 6% per year. Producers in the state aggressively expanded, adding 27,000 cows between 2010 and 2015. Indeed, the average herd size jumped 297 cows to 1,213 per farm in 2015.





The opening of California-based Hilmar Cheese Company's cheese plant in Dalhart, Texas in 2007 kick-started production growth in Texas. This created new and significant demand in the Texas panhandle. Several California producers followed the company east. Gains in cow numbers and milk production continued in the years following. Between 2010 and 2015, annual production grew by nearly 1.5 billion pounds (17%), a yearly increase of roughly 5%. Like Colorado, cow numbers – up 50,000 head in five years – accounted for much of the output growth. From 2010 to 2015 the average herd size increased by 377 cows. By 2015 the average farm in Texas housed over 1,075 cows.

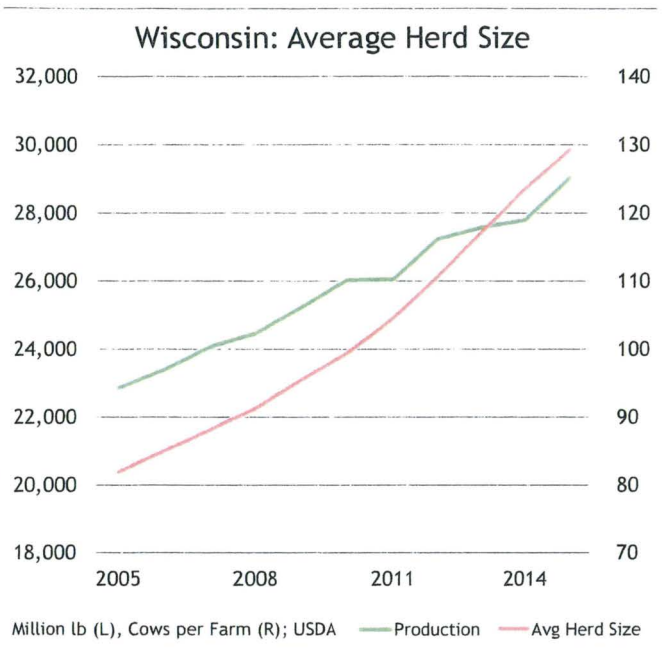
In Kansas, milk output gains drove processing investment. From 2010 to 2015, annual milk production grew by 683 million pounds (27%) – a rate of nearly 5% per year. Cow power helped spur output expansion. The 300 dairies in Kansas added 24,000 cows to their herds from 2010, boosting average herd size by 173 cows by 2015.

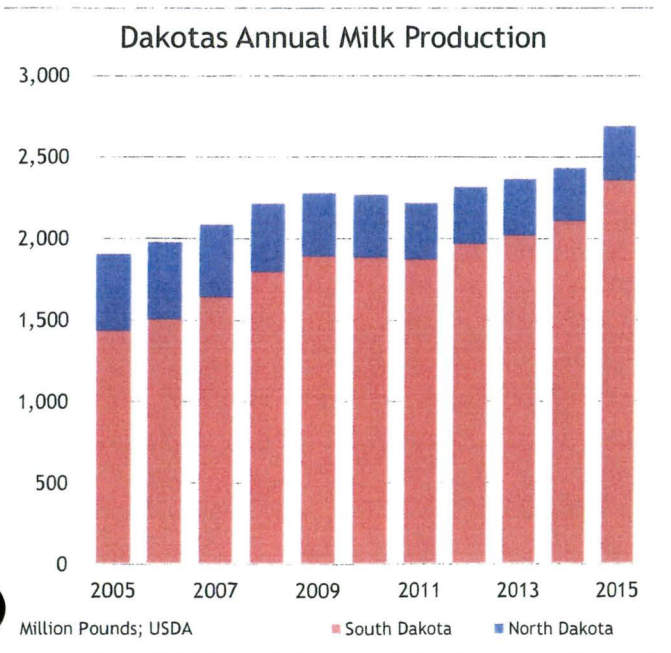
Wisconsin

After a period of sustained contraction in Wisconsin's dairy industry, the trend reversed in 2005. From 2010 to 2015, annual output increased nearly 3 billion pounds (12%), approximately 2% per annum. Over that period, producers added about 16,000 cows to the herd – about 8% of the total increase in

1/31/17 SB 2330 #1B

US cow numbers. Between 2010 and 2015, the total number of dairy operations fell by 3,000. Over the same period, the average Wisconsin dairy herd size increased by 30 cows. Pro-dairy government programs and ample access to feedstuffs may drive further investment in dairy farming. Additionally, Wisconsin boasts the largest concentration of dairy processing facilities in the US, and capacity growth is seemingly unwavering. This sends a clear message to producers to keep expanding.





Dakotas

Following years with little to no growth, milk production across the Dakotas jumped between 2010 and 2015 in response to growth in processing capacity. From 2010 to 2015, annual milk production in North and South Dakota increased more than 3% per year. This increased output by 19% from 2.27 billion pounds in 2010 to 2.69 billion in 2015. But, all this growth came from South Dakota.

Between 2010 and 2015, South Dakota milk production increased 25% (475 million pounds) to 2,359 million pounds in 2015. That's about 5% growth per year. How did they do it? Cow power. Since 2010, South Dakota producers added 14,000 cows. Over the period, the number of dairies dropped by 7% to 255. This pushed the average herd size 169 cows higher to 414 – nearly twice the US average.

On the flip side, North Dakota production fell by nearly 52 million pounds (14%) between 2010 and 2015. A 5,000 head drop in total cow numbers from 2010 spurred much of the decline in output. In spite of North Dakota's struggles, the average herd size in the two states combined reached 353 head per farm by 2015.

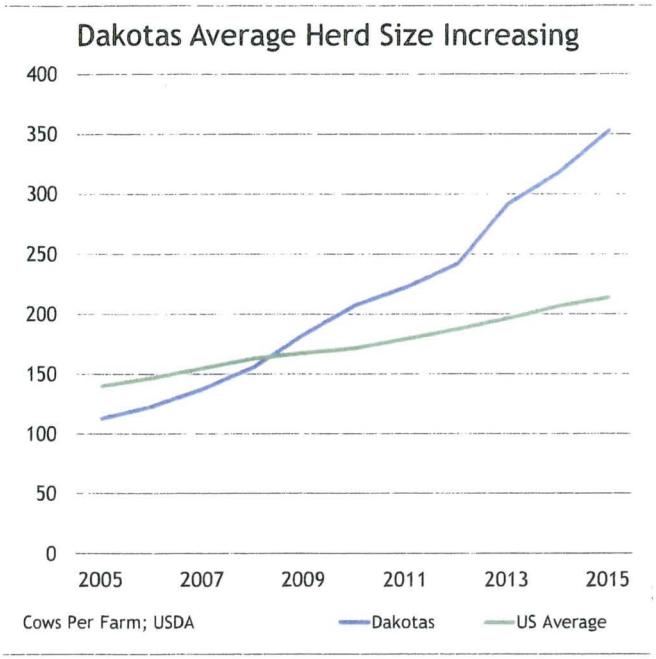
Processing Investments

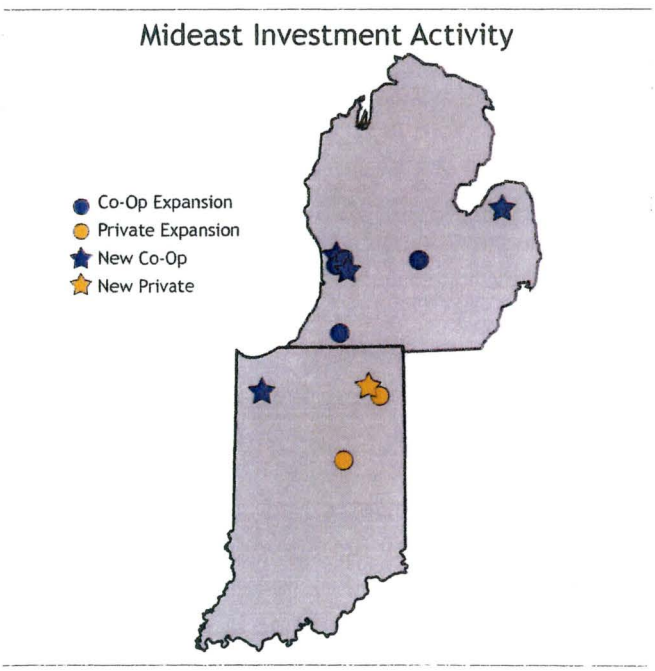
Published reports suggest that, between 2010 and 2015, companies spent more than a billion dollars to build and upgrade dairy manufacturing plant capacity in the US. Investments in the I-29 corridor were made in 2014 by Bel Brands and Valley Queen Cheese. But since then, investment has gone elsewhere. Investors are locating in regions with the most profitable economic outlook. This section reviews these recent investments. Who made them,

when did they make them, and where. Additionally, it considers how the investment landscape might shape up in these regions in the next three to five years.

Mideast

In the Mideast, processors spent an estimated $750 million to expand processing capacity between 2010 and 2015. Michigan received most of those investment dollars. Much of the money came from producers themselves via their manufacturing cooperatives. Though some investment in Indiana is coming from the private sector, producers will likely need to keep their checkbooks open to ensure adequate capacity for the recent 4% + milk production growth rate.





Michigan welcomed two major milk powder plants in 2010, both producer/cooperative funded. Michigan Milk Producers Association (MMPA) spent $62 million to expand its Ovid plant. This investment increased throughput by 2 million pounds per day to 5 million pounds. Similarly, Select Milk Producers (Select) opened a brownfield 4 million pound per day plant in Coopersville (Continental Dairy Facilities).

Local incentives played a role in attracting Select to a mothballed auto parts plant in Coopersville, Michigan. Several million dollars in incentives helped finance the $100 million project. For example, Select received $31 million in Recovery Zone Stimulus Bonds, as well as a $1.5 million state tax credit. Additionally, the city of Coopersville offered Select partial exemption on property taxes, while several grants helped improve road and wastewater infrastructure.

But Select didn't stop there. Following its initiating dry milk production, Select – together with its sister company fairlife – built a 1 million pound per day fluid milk plant in 2013. Located across the street from the original plant, this facility cost $127 million. A $900,000 performance-based grant helped to secure the investment. In 2015, the company invested $96 million to expand fluid milk operations. Furthermore, Select's new butter churn started operating at the original facility in 2016. This butter investment and upgrades to receiving bays cost about $9 million. If the cooperative's output

continues to expand, it seems likely that it will keep investing in processing capacity.

In 2014, MMPA and Wisconsin-based cooperative, Foremost Farms, invested $10 million into MMPA's Constantine plant. This expansion installed reverse osmosis equipment, increasing ability to condense milk for shipment outside of the region. Now, the plant condenses milk solids for shipment around Lake Michigan to Foremost operations in Wisconsin – or even further. This investment added roughly 2 million pounds of additional processing capacity per day.

Adding to the list of cooperative investments in Michigan, Dairy Farmers of America (DFA) built a milk condensing operation in Cass City in 2015. Several incentives helped ease the $40 million cost, including a $500,000 Michigan Business Development grant, a $1 million Community Development grant, and $300,000 in economic development funds. Additionally, DFA received a $6.7 million bond to improve wastewater infrastructure. Built to handle 3 million pounds of milk, this plant is set up to easily expand. In fact, DFA, MMPA, and Foremost Farms are in discussions to jointly invest in cheese production at this facility. The cooperatives are ironing out the details. But, early indications suggest this commercial cheddar cheese plant could handle 6 million pounds of milk per day by 2018.

Dairy manufacturers made little capacity investment in Indiana in the past five years. But, dollars are starting to funnel in. Nestle USA made the largest investment in recent history. In 2014, the company spent about $72 million to build out fluid milk bottling capabilities at its Anderson plant. Over the course of the next few years, both Walmart and Select are separately expected to make major investments in the state.

"DAIRY MANUFACTURERS MADE LITTLE PROCESSING CAPACITY INVESTMENT IN INDIANA IN THE PAST FIVE YEARS. BUT, DOLLARS ARE STARTING TO FUNNEL IN."

Walmart recently announced its intention to build a $165 million fluid bottling plant in Fort Wayne. This marks the first greenfield investment by a private company in the Mideast since Nestle in 2009. Walmart received several incentives to help allay new plant costs, including $850,000 in conditional tax credits and up to $2.9 million in investment tax credits. Published reports say the plant will be up and running nearly 2 million pounds of milk per day by 2017. Though the plant will likely help to soak up some of the surplus milk in the region, it could also create some trickle-down impacts. Specifically, Walmart's vertical integration of milk bottling in the area could displace some current sales. The need for more capacity in the region is likely to continue.

Beyond Walmart, published reports suggest Select is planning to build a $230 million cheese plant at Fair Oaks. While the details are still hazy, the cooperative is reportedly looking for proactive solutions to handle future surplus milk. In an effort to secure the investment, local agencies awarded Select a $15 million bond to build out sewer and water infrastructure near the plant.

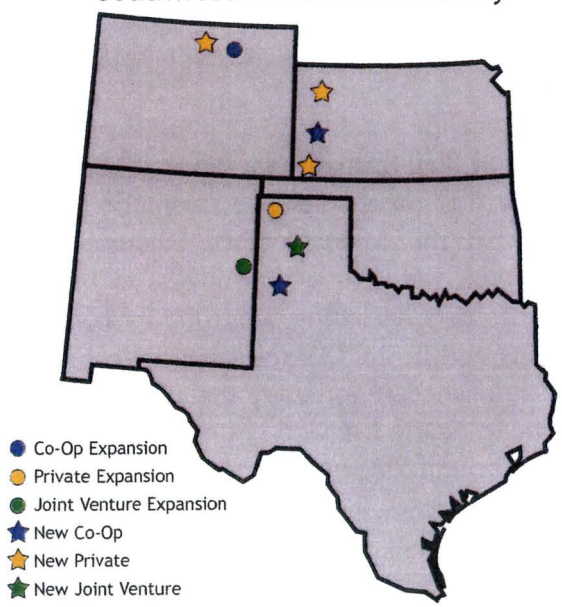
Southwest

In the Southwest, cows followed capacity. And in contrast to other regions, investment in the Southwest – Colorado and Texas, specifically – came by way of private investors.

Leprino Foods Company built its second Colorado manufacturing plant in 2012 to the tune of $270 million. The company purchased a brownfield site in Greeley in 2008 but put construction on hold following a rapid decline in the region's milk output during 2009. Because Colorado's dairy industry was still rebuilding, Leprino built its plant in phases. Intake started at 1.5 million pounds per day for a powder plant in 2011. A year later, the company ramped up cheese production, adding another 2.5 million pounds of processing capacity. Phase three of the Greeley project is underway and is set to open in 2017.

Several incentives, particularly from the city of Greeley, encouraged Leprino to revitalize an idle sugar refinery into a state-of-the-art dairy facility. For this, the company received compensation for environmental site cleanup as well as reimbursement of site development fees. Leprino also received $60 million in property tax rebates and $500,000 in economic development rebates. The company benefits from a discount on water usage, in addition to a 50% sales and use tax waiver on equipment, machinery installation, and computer hardware.

Southwest Investment Activity



Leprino, however, was not the only company to invest in the state between 2010 and 2015. Kroger opened a fluid milk processing plant in Denver in 2014. At the same time, smaller manufacturers like Noosa Yoghurt and Aurora Organic also expanded. Due to Colorado's distance from other milksheds (and manufacturing assets), production growth may remain modest. It costs too much to ship surplus milk regularly to another region. Instead, producers will likely grow in step with existing manufacturers.

One major processor is behind a lot of the growth in Texas. Hilmar Cheese Company announced plans

in 2005 to build a new plant in Dalhart. The company's initial investment started as a 5 million pound of milk per day cheese plant in 2007. The facility doubled capacity with another $100 million investment in 2011. This took the total investment to an estimated $250. Building a plant in the middle of the high plains – where much of the economy relied on beef production – placed Hilmar in a favorable position to obtain financial incentives. Indeed, through the second phase of construction, the company received incentives of roughly $45 million. At the state-level, these included a $7.5 million grant from the Texas Enterprise Fund, a $6.7 million in funding from the Texas Department of Transportation to help improve surrounding infrastructure, $2.4 million in funding from the Texas Workforce Commission, $1.8 million in Enterprise Zone funding, and exemptions on sales tax for manufacturing equipment valued at $9.9 million. Additionally, the Amarillo Economic Development Council awarded Hilmar $5 million, and local tax abatements totaled about $12 million. Hilmar Cheese Company continues to invest in its Dalhart plant, improving processing technology and increasing plant throughput with construction projects in 2014 and 2016.

Now, cooperatives are joining the Texas investment wave – in a major way. Over the course of the next two to three years, roughly 6 million pounds of processing capacity may come on-line in northern Texas. Lone Star Milk Producers (a regional cooperative) together with the world's largest dairy trading firm, Hoogwegt, is building a 2 million pound per day milk powder plant in Canyon. Operation at this facility should commence in 2017. Though the investment's total cost is confidential, thus far the company received at least $1.5 million in tax credits. Additionally, Select is investing $250 million in a milk powder plant in Littlefield. This plant is forecast to process 4 million pounds per day by 2018.

"OVER THE COURSE OF THE NEXT TWO YEARS, ROUGHLY SIX MILLION POUNDS OF PROCESSING CAPACITY MAY COME ON-LINE IN NORTHERN TEXAS."

Just across the border in New Mexico is Southwest Cheese – an operating division of Glanbia USA and joint venture partner with area cooperatives Select and DFA. Southwest Cheese is investing $140 million to expand cheese output by nearly 30%. Published reports suggest the expansion project will be up-and-running by 2017.

Cooperatives and producers are also driving investment in Kansas. Interestingly, every processor investing there is focusing on moving product out of the state, whether in fluid or powdered form. In 2012, McCarty Farms – a large regional dairy producer – partnered with Dannon to build a

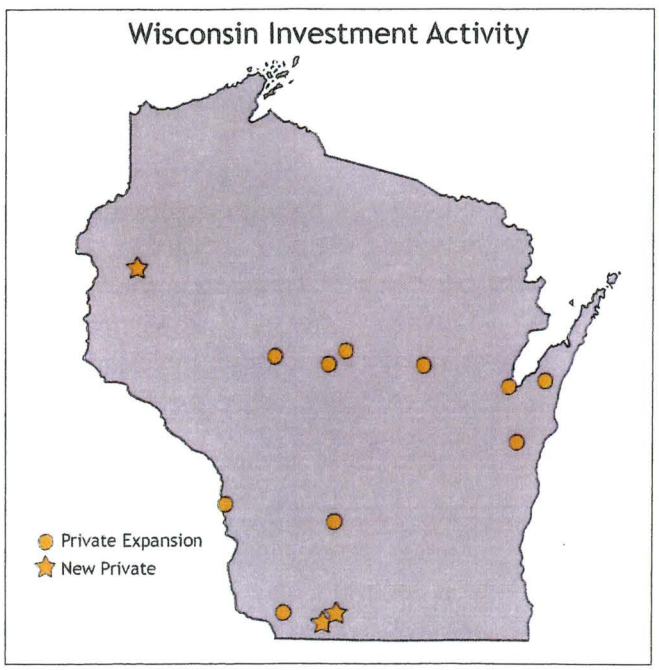
500,000 pound per day milk condensing plant at the farm. This $19 million plant is set up to condense and ship milk to Dannon's yogurt plant in Fort Worth, Texas. Similarly, Kansas Dairy Ingredients invested $20 million in a 1 million pound per day condensing plant in Hugoton. While this organization plans to expand into other products, it currently ships much of its product out of state to be further processed.

In the years ahead, it seems possible that cooperatives/producers will lead investment in the region. DFA is moving next, announcing plans to build a $235 million ingredient plant in Garden City. This plant is forecast to open in 2017 and will have capability to run 4 million pounds of milk per day for NDM/SMP production.

Wisconsin

Wisconsin saw fairly continuous plant capacity investment over the past several years amidst growing demand for cheese and whey. And, unlike many other regions, the money came from private companies. Also, in some instances, investments focused on upgrading manufacturing equipment – like whey processing – rather than increasing throughput. These investments do little to actually boost milk processing capacity, but instead reflect a manufacturers desire to move up the "whey value chain."

Agropur made the largest investment in Wisconsin. The company spent more than $150 million in three of its Wisconsin plants between 2014 and 2016. In Luxemburg, for example, the company invested about $108 million to grow cheese output by roughly 70 million pounds. At the same time, it increased whey processing capacity and upgraded the facility's waste treatment plant. Agropur is also investing $55 million in feta production at its Weyauwega plant. To assist, the Wisconsin Economic Development Corporation chipped in $1.65 million in Economic Development Tax Credits over several years.



Similarly, Mullins Cheese Company funneled a combined $100 million into its two processing facilities over the past few years. The Marshfield plant upgraded cheddar processing equipment, doubling capacity to nearly 3 million pounds of milk per day. The Knowlton facility also expanded, increasing capacity for production of premium Italian cheese. Whey operations are consolidated at Knowlton and focus on high value WPI and permeate.

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Wisconsin Whey's recent investments account for the largest increase in milk processing capacity in the state to date. In 2012 the company invested in whey processing in Turtle Lake. Then, in 2015, it turned the lights on at a barrel cheese plant in Darlington with the site's whey processing facility set to open in 2016. The Darlington facility can reportedly process up to 2 million pounds of milk per day.

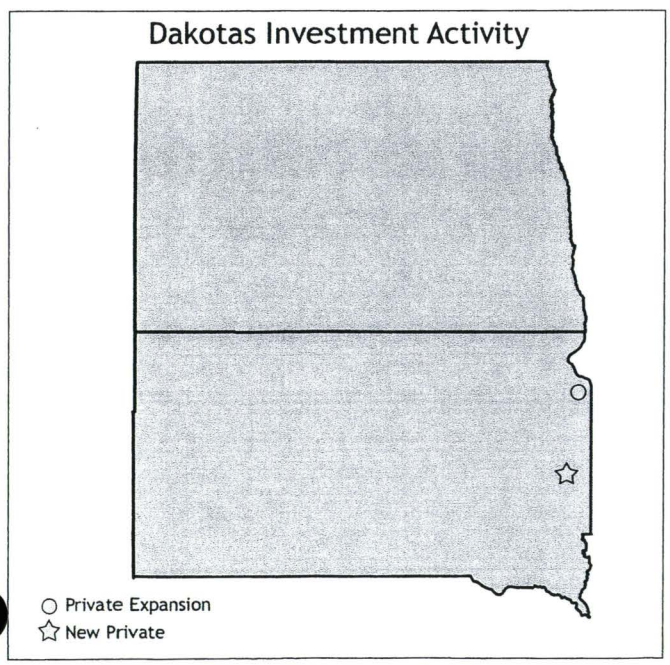
Smaller cheesemakers also invested in greater capacity. Emmi Roth spent $43 million to expand its operation in Platteville, while Baker Cheese invested $7 million to add whey processing equipment to its facility in St. Cloud. Emmi Roth received $500,000 in Economic Development tax credits, as well as a $600,000 loan from Economic Development Council. Similarly, Baker Cheese obtained Economic Development tax credits valued at $800,000.

Outside of cheese, Grassland Dairy Products doubled butter output at its Greenwood plant with the addition of three new churns, as well as added milk protein and whey permeate drying capacity.

Looking ahead, companies – both private and cooperative – will likely continue investing in Wisconsin. Already, Belgioioso announced its intention to invest in additional cheese making capacity at its Green Bay facility by 2017.

Dakotas

Over the course of the past few years, dairy manufacturers – generally private companies – made some investment in processing capacity in the Dakotas.



Valley Queen Cheese, for instance, invested in high protein whey processing capabilities in its Millbank, SD plant in 2014. This investment upgraded processing equipment within the plant, but did not significantly impact throughput.

On the other hand, the Bel Brands plant in Brookings, SD brought more than 500,000 pounds per day of processing capacity to the region in 2014. This greenfield plant cost $144 million, while incentives netted nearly $20 million. City-level government provided most of the money. Indeed, the city of Brookings awarded Bel Brands with roughly $12 million through bonds to finance site development and to improve waste treatment, as well as grants for economic development and tax rebates. From the state level, Bel Brands received $10 million in loans for processing equipment.

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Conclusion

Each region has its own story of growth and investment. The Mideast's story is largely producer led in both production and investment. Dairy farm expansions drove substantial milk production growth. Today, cooperatives are responding to the mismatch in supply and demand by investing in plant capacity. For Southwestern states like Colorado and Texas, private processor investments led milk production growth. Meaning, farmers invested at the same time as construction crews built the plant. In Wisconsin, proprietary processors made the most recent investments in cheese and whey processing equipment. For the Dakotas, processing capacity also spurred milk output growth. Today, producers are ready and willing to expand, but processing capacity isn't yet there to justify the growth. ■

A VISION FOR DAIRY IN THE DAKOTAS

Part II: Comparative Plant Economics

Introduction

IN THE SUMMER OF 2015, OFFICIALS FROM NORTH AND SOUTH DAKOTA REALIZED THEY HAD A PROBLEM. OR MAYBE AN OPPORTUNITY.

Across the country, companies and government officials touted new dairy manufacturing facilities. Most were hundreds, if not thousands, of miles away. Dairy producers here are willing to expand and grow, that much is given. But why not build a new plant in the Dakotas? Answers were elusive.

Seeking to find some answers, and possibly forge a path forward, the North Dakota Dairy Coalition and the State of South Dakota combined to commission a study. The goals? Educate and inform dairy stakeholders about US trends in both milk production growth and plant investments. Review comparative economics in plant operations between regions. Evaluate the strengths and weaknesses of the Dakotas when it comes to attracting new investments. Provide some strategies about how to move forward. The study is organized in this manner. Four parts bound by a common theme.

To begin the series, Part I examined regional milk supply growth and dairy processing expansions around the US. For the Dakotas, processing investments have lagged compared to farm level interest in expansion. **HERE, PART II QUANTIFIES AND COMPARES FINANCIAL RETURNS BETWEEN HYPOTHETICAL PROCESSING PLANTS LOCATED IN SOUTH DAKOTA, MICHIGAN AND COLORADO.** The investment analysis focuses largely on milk and operating costs, or those that vary materially between regions. The model includes both butter/powder, cheese/whey, and a retail or branded focused plant. While the results vary, estimated returns

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for a Dakotas plant falls $10 to $15 million short on an annual basis compared to a similar plant operating in another region. Since dairy plant location is about more than price, Part III explores other factors processors consider when making an investment decision. And finally, Part IV proposes options the states could consider to successfully attract new processing investment to the region.

This project is not all encompassing. It does not provide a step-by-step manual that will radically alter the current course overnight. Rather, the intent is to provide a clearly defined starting point. Summarize where the Dakotas fit into the broader US dairy landscape. Talk about the advantages and disadvantages a processor would enjoy or encounter by doing business in the region. And, when possible, quantify the economic costs of manufacturing dairy products in the Dakotas compared to other growing milk regions. With this research in hand, stakeholders will better understand the problem(s) to solve. More important, they may also begin to see the associated costs and possible pathways to get there. The findings should become a key input into future conversations and planning events, as the effort moves from the conceptual to actionable.

About the Authors

Blimling and Associates, author of this series, is a widely respected dairy consulting and research firm. The Blimling team combines extensive dairy/commodity market experience with economics/finance backgrounds. Intimate working knowledge of the marketplace, detailed data analysis, exceptional critical thinking skills, numerous relationships around the world, and a demonstrated commitment to robust but clear communication power the Blimling client services platform. And, the team knows the region. Clients from the Dakotas have been on the customer list for 20 years. Additionally, since 2013 Blimling has been active in the region completing three separate rounds of research for the Midwest Dairy Association, including the seminal piece, *A Path Forward* from 2014. ■

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What goes into the decision-making process for new dairy processing investments? What factors weigh on their final decision? Milk supply and future growth prospects certainly carry weight. As does a favorable business climate. As critical as those elements are, new plant investment does not even get off the ground unless the financials work out. Part II delves into these financials, looking closely at the capital requirements and subsequent income statements for modeling cheese/whey and butter/powder plants across three regions – the Dakotas, Mideast, and the Plains. The list of key financial considerations is long. There's upfront capital – cost of acquiring land, excavation work, building construction, processing equipment, and numerous indirect support activities. There's pro forma plant margins indicating whether a potential processing facility can sustainably make money and earn a positive return on capital. And then there's prospective tax breaks and economic incentives from municipal and state authorities to sweeten the deal (addressed in Part IV). Beyond the production economics behind commodity processing, this section explores opportunities in retail and specialized ingredients as avenues to enhance margins.

"NEW PLANT INVESTMENT DOES NOT EVEN GET OFF THE GROUND UNLESS THE FINANCIALS WORK OUT."

Chapter 1: Model Definitions

As discussed in Part I, new dairy processing facilities are sprouting up across the central part of the US. Hypothetical plant models provide insight around the underlying financial motivation behind these investments. To establish a meaningful comparative margin analysis, a theoretical model compares a Dakotas plant with competing milk sheds in Michigan and Colorado. Each state is meant to be a proxy for larger regions – Mideast and Mountain/Plains – where milk supply is expanding and processing investments are actively taking place.

For the Dakota's model, South Dakota is the representative choice. Milk composition, wages, and utility rates are available for both North and South. However, North Dakota milk premiums are harder to quantify as the USDA does not report pricing for the state. Readily available South Dakota milk pricing history makes it easier to calculate regional milk premiums. Later in the study, a comparison between North and South Dakota underscores the key cost drivers between the states, such as regional product price spreads, and labor and utility expenses.

Overarching Model Assumptions

Plant economic models are often static as they contain a series of fixed assumptions. The ensuing financial models are no different. Some model inputs do not change with location – such as capital costs, plant scale and operating schedule. Other parameters like milk composition, local milk premiums, labor and utility rates vary by state and must be clearly identified to understand relative advantages and disadvantages. The assumptions outlined below apply to models for plant types. Each model's respective chapter discusses more specific inputs associated with each production mix.

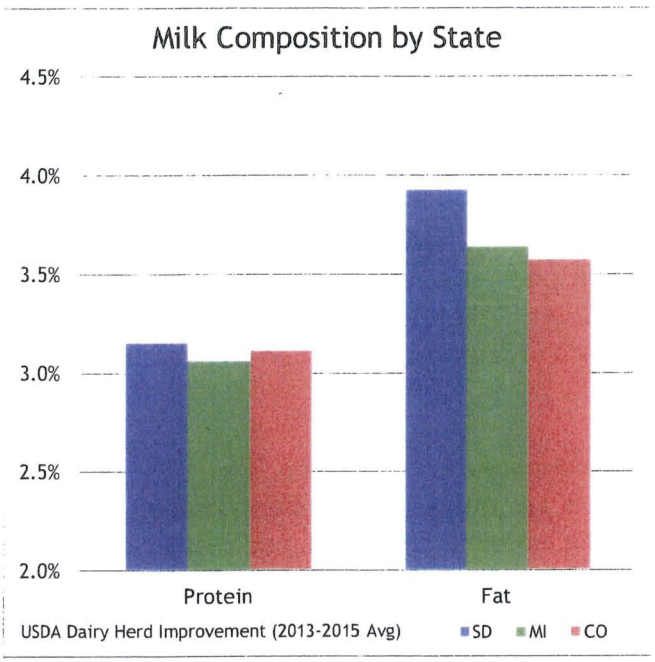
Capital costs: Different regions of the country feature similar capital costs. The cost to buy equipment and pour concrete is not expected to vary much between the Dakotas, Colorado, and Michigan.

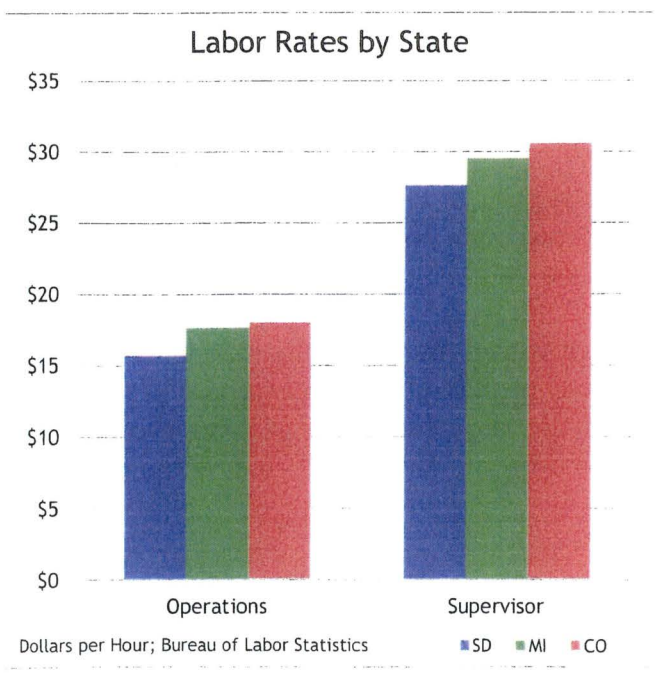
Plant intake: Each plant model assumes daily milk intake of three million pounds. This level of throughput is similar in size to recently constructed plants. It's also large enough to generate a competitive cost structure for commodity products like cheese, whey, nonfat dry milk, and butter.

Milk supply: The model assumes three million pounds of milk is available starting day one, sourced from a third party like an area cooperative.

Plant operates 360 days of the year: Most dairy plants take some down time in a given year to address major maintenance tasks. Smaller maintenance work is completed throughout the year with minimal impact to throughput.

Several critical inputs to dairy plant profitability do in fact vary between regions. Those listed below have a direct impact on bottom lines – whether it affects finished product volumes, revenues or operating costs.





Milk composition levels: Protein and fat levels in milk are fundamental to plant yields. According to the USDA's Dairy Herd Improvement (DHI) on-farm survey, protein levels do not differ much across the three states, although South Dakota carries a slight edge. From 2013 to 2015, DHI protein content for South Dakota averaged 3.15%, while protein levels for Colorado and Michigan averaged 3.11% and 3.06%, respectively. Fat content shows a more significant difference, with South Dakota exhibiting higher fat levels averaging 3.92%, with Michigan and Colorado closer to 3.60%. This higher butterfat content gives the Dakotas a notable yield advantage in both cheese and butter production, while a narrow protein gap hints at more level milk powder and whey volumes.

Local milk premiums: Local supply/demand conditions determine the milk price manufacturers must pay above and beyond minimum prices established by the Federal Milk Marketing Orders (FMMOs). Looking at the selected regions, over-order class premiums vary significantly. In the Dakotas, milk premiums are among the highest in the country, ranging anywhere from $1.50 to $2.00 per hundredweight. The models in this study assume $1.50 per hundredweight, as industry contacts suggest prevailing premiums are tracking closer to the low-end of the range. Milk sourced from Michigan and Colorado command lower premiums, due largely to strong supply growth in excess of processing capacity. Anecdotal reports suggest Colorado milk is frequently contracted close to "at Class," meaning zero premium. Michigan milk commands a bit higher premium, closer to $0.25 per hundredweight over the regulated minimum class price.

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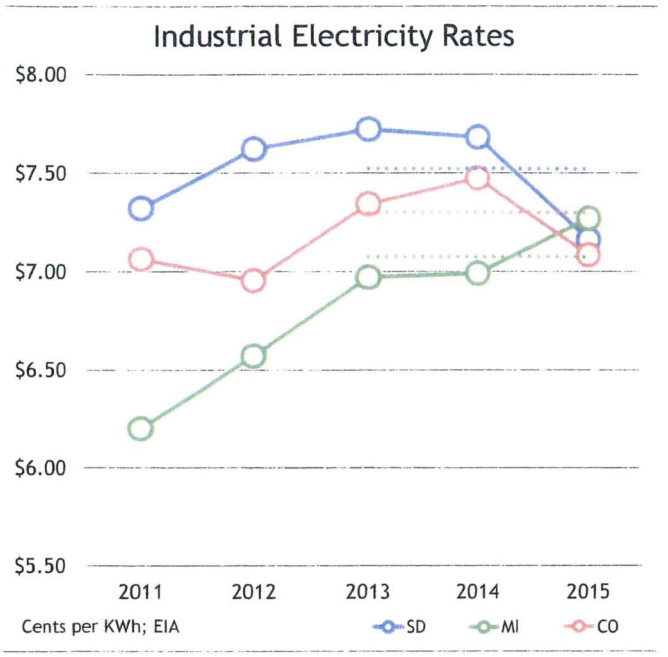
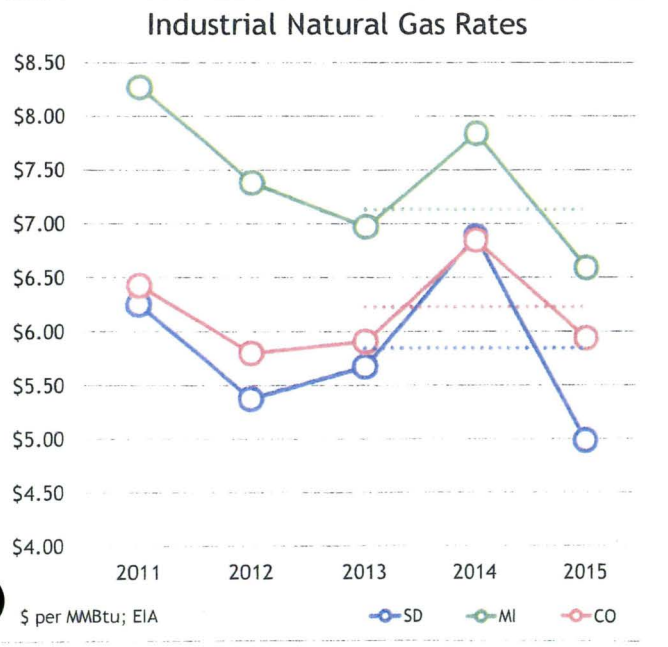
Labor wages: "General Production" wage rates from the US Bureau of Labor Statistics May 2015 report set the baseline for each of the theoretical plant locations. South Dakota had the lowest wage rate at $15.68 per hour, with Michigan and Colorado 13% and 15% higher, respectively. Supervisory positions echoed the same relative gaps.

Utility rates: Dairy plants consume a significant amount of energy. Whether making powder and butter or cheese and whey products, every step of the process takes requires energy to heat, cool, dry, and move milk in all its forms. Heavy electrical and natural gas usage leads to expensive utility bills that vary based on state utility rates. No one state is at a particular disadvantage in terms of their energy spend. South Dakota claims the highest average electricity rate at near $0.075 per kilowatt hour, but it also boasts the lowest gas rate – the only location with a rate under $6 per MMBtu. (Of note, North Dakota gas rates are lower still – almost $2 lower than that of South Dakota.)





Chapter 2: Butter and Milk Powder Model

The first comparative plant model looks at a theoretical milk powder and butter operation. A short summary of the requisite processing steps helps frame up the subsequent capital review and financial analysis. The location-specific income statements reflect local milk components and processing variables. While the models are historical-leaning, using five-year average market values, they are viewed as directionally accurate when compared across regions.

Processing Overview

Butter and powder production is fairly straightforward. Plants receive farm milk and separate it into skim milk and cream. The resulting streams then follow different paths for processing.

First, the skim milk is pasteurized. Different pasteurization temperatures – ranging from low, medium, and high – yield unique functional characteristics in powder products. Heat-treated skim milk flows to an evaporator to remove a portion of the water, with a goal of reaching about 50% solids. The condensed skim milk enters a 400°F drying chamber where milk droplets almost instantly transform into a fine powder. The resulting powder is

collected at the base of the dryer. A secondary drying step takes place on a conveyor, known as a fluid bed, which further reduces the moisture level. This nonfat dry milk powder (NDM) is then graded and sifted for any foreign particles before being packed and sent into dry storage.

Butter production begins with pasteurizing separated cream. A ripening phase cools the cream to allow the milkfat to crystalize. After spending 10 to 12 hours in crystallization tanks, the cream enters the butter churn. The churn vigorously agitates the cream, which breaks up fat globules and forces them to coagulate into larger chains. The raw butter is separated from liquid buttermilk before entering a kneading stage where the product is "finished" to meet various specifications. The final product is then packed into bulk or retail sizes and moved to cold storage.

Buttermilk is a by-product of the butter production process. Buttermilk processing follows similar steps as NDM. Condensed buttermilk can be directly marketed to local buyers. Or, the concentrate can be fed into the same NDM dryer to make a powder. Drying is typically done every few days so as to minimize any disruption to NDM production cycles.

Capital Requirements

Building a NDM and butter operation is by no means cheap. However, such facilities are less expensive to build than cheese plants. Based on industry intelligence and publically available information on recently finished plants, constructing and outfitting a new NDM and butter site is expected to cost $110 to $135 million. Equipment and construction costs consume the most capital, totaling an estimated $85 to $95 million. Land acquisition costs and site development can vary depending on the property condition and grading, but $5 to $10 million is considered a good range to work within. Indirect project work constitutes a wide array of support activities, from initial design work and pre-engineering to environmental permitting and financing activities. Indirect support costs can

NDM & Butter Capital Requirements		
$ million	Estimated Cost	Specifics
Equipment	$40 - $45	Dryer, evaporator, churn, silos, separators, packaging lines
Building	$45 - $50	Cost to construct ~125,000 square foot facility
Land / Site Development	$5 - $10	Land acquisition cost, site excavation, utility infrastructure
Indirect Support	$10 - $20	Pre-engineering, permitting, legal services (among others)
Contingency	$10	Approximately 10% of total cost
Total All-In Capital	$110 to $135	

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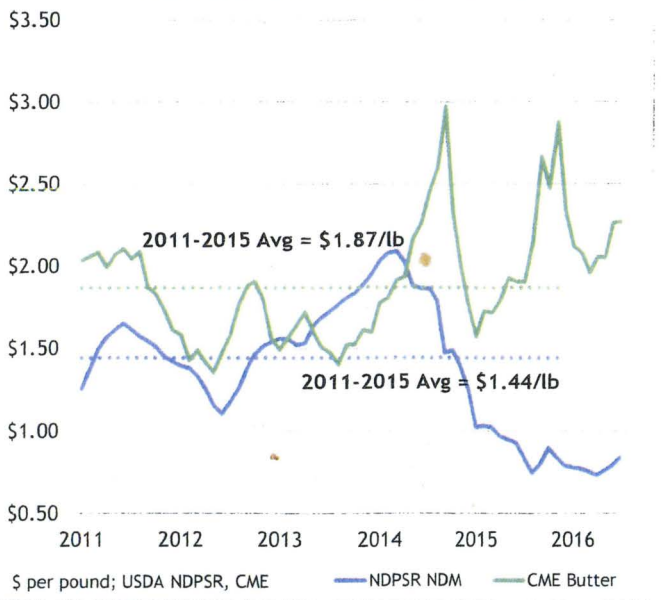
range from $10 to $20 million. Lastly, to account for potential for unplanned overages, an approximate 10% buffer is included in the overall capital budget for contingency funds.

State to state, total capital cost won't likely show any notable variances, save for some differences in construction labor costs and land acquisition costs. Although land prices may vary, it should not have a material impact on the income statement. Land does not have a "useful life," thus it is not depreciated, meaning it does not appear as an expense item. Loan interest related to the land purchase does factor into fixed overhead costs, but the impact of any regional cost gap would be small on an annual basis.

Regional Plant Volumes			
	South Dakota	Michigan	Colorado
Milk Components			
Nonfat Solids	8.91%	8.80%	8.87%
Butterfat	3.92%	3.64%	3.57%
Volume (million lb)			
NDM	93.3	92.5	93.3
Bulk Butter	56.6	52.5	51.5
Buttermilk	6.0	5.5	5.4

NDM and Butter Market Prices



Regional Market Price Assumptions			
Index	South Dakota	Michigan	Colorado
NDM (vs. USDA NDPSR)	$0.03	$0.05	$0.00
Bulk Butter (vs. CME)	$0.02	$0.04	$0.01
Buttermilk (vs. USDA Central Avg)	$0.02	$0.02	$0.02

NDM and Butter Model-Specific Components

Product volumes: With South Dakota boasting a superior milk composition profile, downstream product yields are greater than in plants situated in Michigan and Colorado. South Dakota milk averages around 8.9% SNF which, coupled with a yield loss estimate of 1% ("shrink"), leads to approximately 93 million pounds of NDM in the model plant. Butter volumes are a bit more variable across site locations. A South Dakota plant generates more finished butter volume due to its high relative butterfat content – approximately 57 million pounds versus 52 million for Michigan and Colorado. These production figures assume each model butter plant has the capability (and the economic incentive) to openly purchase extra cream from December to May – months where cream is traditionally inexpensive due to lower seasonal demand. Michigan and Colorado may be considered more cream-rich states with more available supply, but South Dakota does have local low-fat cheese production spinning off cream.

Plant revenues: Regional NDM and butter sales prices reflect known premiums for respective geographic areas. NDM sales use USDA's National Dairy Products Sales Report (NDPSR) as the baseline. The 2011 to 2015 baseline average was $1.44 per pound. Regional adjustors – vetted by multiple industry contacts – add a premium to the NDPSR average to arrive at realistic local pricing. Freight cost differentials help to

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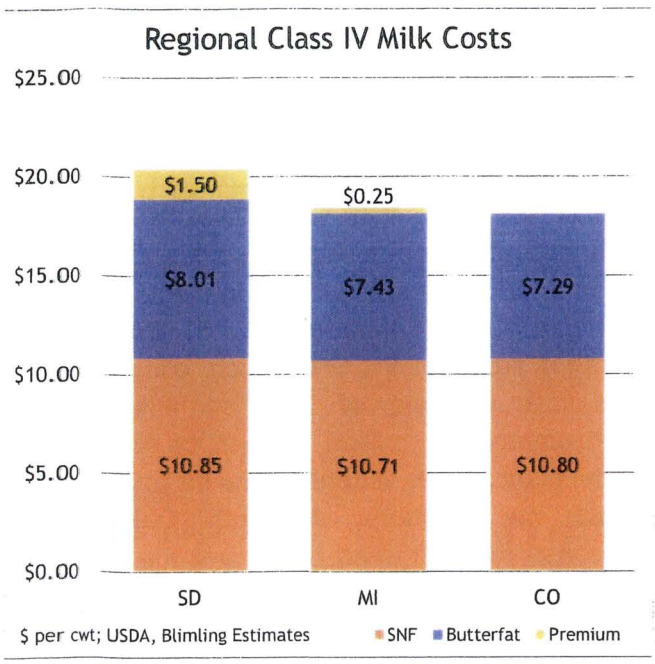
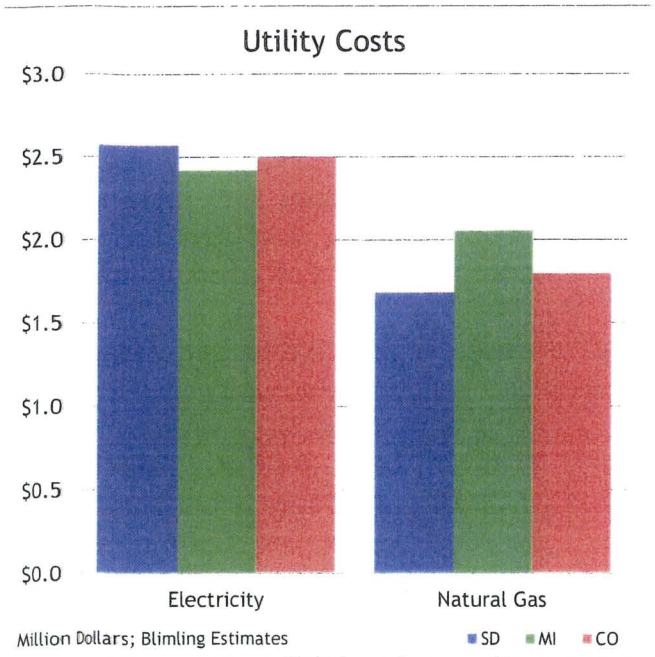
validate the price spreads between locations. Butter transactions are typically priced using CME spot market averages. Over the same five-year horizon, the CME butter price averaged $1.87 per pound. Again, regional adjustors account for variances in freight costs when shipping to customers out east.

Milk procurement costs: The model's milk cost has two components. The first has already been highlighted – the local milk premium, which, in South Dakota, is $1.25 to $1.50 more than competing milk sheds. The second dimension is the baseline FMMO "Class IV" milk price, the minimum price processors must pay for milk converted into butter and milk powder products. South Dakota milk's higher butterfat content (3.92%) drives an estimated $0.58 to $0.72 per hundredweight wedge compared to both Michigan and Colorado (at five-year average historical component values). Added together, the premium and Class IV price means a South Dakota processor pays $20.36 per hundredweight. Meanwhile, the equivalent milk procurement costs are $18.30 and $18.09 for Michigan and Colorado, respectively.





Staffing: Running a powder plant of this size is generally a 24/7 operation, adequately staffed around the clock. This theoretical NDM and butter plant assumes a fully dedicated staff of 55. This includes 46 operations personnel, both operators and line supervisors, in receiving and wet processing to quality and maintenance. Plant management roles account for the nine remaining headcount.

Utility costs: NDM and butter plants require a significant amount of energy to convert milk to dairy products. Natural gas is a vital energy source, providing the heat required in evaporation and drying. Plants also require a significant amount of water for generating steam and equipment cleaning. Electricity and natural gas costs are set against state-level rates reported by the US government. Electricity costs were fairly level across locations, while South Dakota claimed the biggest advantage in natural gas. Outside water use and wastewater disposal are also important utilities to be mindful of. However, these utility costs are notably lower than that of electricity and natural gas. Such rates are difficult to estimate, thus $0.01

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per pound of milk solids is used as a representative cost figure for water usage and removal.

Other operating costs: Plants incur several other conversion costs outside of labor and utilities, but these expenses should be consistent across regions. Maintenance and repairs, quality assurance, and packaging expenses should not vary much, if any, by location. Fixed overhead components, like capital depreciation and long term interest, should also be consistent. General and administrative costs can and will vary to some degree as management salaries often times differ from region to region. In this model, salaries were indexed according to the supervisory wage gaps from state to state. While this may not be a perfect approach, establishing this directional adjustment was deemed appropriate for the salaries of the nine plant management roles.

NDM / Butter P&L Comparisons			
Revenues and milk costs tied to 2011-2015 market averages	**South Dakota**	**Michigan**	**Colorado**
Plant Volume (million lb)			
NDM	93.3	92.5	93.3
Bulk Butter	56.6	52.5	51.5
Buttermilk	6.0	5.5	5.4
Cream			
Revenues ($ million)			
NDM	$136.9	$137.0	$134.1
Butter	$105.9	$98.9	$95.6
Buttermilk	$8.0	$7.4	$7.4
Total Revenues	**$250.8**	**$243.3**	**$237.1**
Milk Procurement Costs			
Class IV SNF & Butterfat	$208.0	$200.1	$199.6
Milk Premium	$16.2	$2.6	$0.0
Outside Cream Purchases	$9.0	$8.4	$8.2
Total Milk Costs	**$233.2**	**$211.1**	**$207.8**
Variable Costs			
Direct Labor	$2.8	$3.2	$3.2
Utilities	$5.6	$5.9	$5.3
Other Variable	$8.7	$8.4	$8.4
Total Variable Costs	**$17.1**	**$17.4**	**$16.9**
Fixed Overhead Costs	**$10.7**	**$10.8**	**$10.9**
Earnings Before Tax	**($10.5)**	**$4.1**	**$1.5**

Bottom Line Results

Rolling up all the P&L components together shows how margins stack up from location to location. The model plants in Michigan and Colorado both yield positive margins on the basis of five -year historical markets. South Dakota, on the other hand, gives way to a loss of $10.5 million – a $12 to $15 million swing versus the other two states.

Deep dive analysis is not necessary to understand the main drivers behind bottom line variances. By itself, the cost of procuring milk in the Dakotas sets area processors back $14 million or more compared to like-manufacturers elsewhere in the country. And, while South Dakota does enjoy lower wages and natural gas rates, those advantages barely make a dent in the milk premium spread.

Using historical market averages helps to smooth the ups and downs from year-to-year. Although, does a year-by-year look at these comparative returns change how we view the Dakotas against competing regions? The answer is no. From 2011 to 2015, NDM/butter processing in South Dakota led to annual losses ranging from

$10 to $12 million. Meanwhile, similar plants operating out of Michigan and Colorado saw positive margins (except for 2015). The returns may not be all that flashy, but a sustainable positive income stream does attract lenders – a critical piece of any major capacity investment.

Based solely on this high level margin exercise, it appears that a standard NDM and butter operation holds little promise in the Dakotas (at least in South Dakota). A plant may be affordable from a capital standpoint, but the operating margins are simply not there. Said another way, if capital dollars were available to build a butter/powder plant, and the location did not matter, other regions offer more promising prospects compared to the Dakotas.

Chapter 3: Cheese and Dry Whey

Cheese and whey plants can have numerous different setups – from basic commodities to specialty products to exotic fractionations. Most footprints, however, yield similar regional margin comparisons. Said another way, margin differentials between cheddar/dry whey plants and mozzarella/whey protein isolate plants are likely the same whether in South/North Dakota or Michigan. Here, the model measures a basic commodity cheddar/dry whey plant in South Dakota versus an identical operation in Michigan and Colorado.

As in Chapter 2, a short summary of the requisite processing steps illustrates the cheesemaking process.

Processing Overview

Just as modern grocery stores feature tantalizingly wide cheese selection, plants employ a variety of manufacturing techniques. But, despite numerous quirks, most cheesemaking procedures tend to follow the same general flow.

"JUST AS MODERN GROCERY STORES FEATURE TANTALIZINGLY WIDE CHEESE SECTIONS, PLANTS EMPLOY A VARIETY OF MANUFACTURING TECHNIQUES."

First, farm milk goes through pasteurization. In many cases, water and lactose are removed as milk undergoes front-end filtration – raising protein and fat content to improve cheese vat yields. Prior to entering the vat, milk may also be separated into skim and cream, a necessary step if producing low-fat varieties. Once in the vat, starter cultures (benign strains of bacteria) are added to milk, followed by food coloring – annatto or beta carotene – for yellow cheeses like Cheddar or Colby. Rennet is added to cause the casein protein to coagulate and develop into a soft gel. From there, the semi-solid milk is cut into cubes to help release the whey. The remaining curds are cooked and stirred in liquid

whey, strengthening protein bonds, and forcing out more whey. The curds and whey move down separate paths in the plant, with the curds left to form a mat of cheese. A milling step cuts the cheese into smaller curds. The addition of salt halts starter culture activity while also expelling any residual whey. Cheese curds are then pressed into molds, packaged, and aged to achieve the proper flavor, texture, and body characteristics.

Sweet dry whey processing resembles NDM production. Fluid whey moves from the cheese plant, where it is first clarified to remove any residual cheese "fines." Next, a separation process removes excess fat. Both cheese "fines" and residual butterfat typically return to the cheese operation. Meanwhile, clarified whey undergoes pasteurization and evaporation to raise the solids content prior to drying – process steps identical to NDM. Condensed whey is cooled so lactose crystals develop, creating seed particles for the drying process and allowing a more free-flowing powder to form. Following crystallization, condensed whey is spray dried and packaged before moving into dry storage.

Making sweet dry whey is comparatively straightforward. But, as whey protein and lactose products increase in value, fractionation has quickly become a more profitable enterprise. Later, this section features a review of value added high protein processing to provide a better understanding of potential bottom line impacts.

Vat Efficiencies by Pre-Filtration

Over the past couple decades, ultrafiltration (UF) – a membrane filtration technology – ushered in a new age in whey protein fractionation in response to soaring consumer demand for the high-quality dairy proteins. The same filtration technique also found practical use in modern cheesemaking. Not long ago, traditional cheese plants sent pasteurized farm milk – at around 12 to 13% milk solids – straight to the cheese vat. Today, modern vats can process incoming milk filtered to around 15% solids – representing a 20% vat efficiency gain. A front-end filtration step simply removes what cheese vats don't need: water and lactose. Plants realize the gains in one of two ways. They either don't need as many vats to make the same amount of cheese, or they get more cheese from the same number of vats. Either way, per unit conversion costs diminish.

In most plants, only 10 to 20% of incoming farm milk receives filtration treatment. For starters, it is simply not economically feasible – due to the sheer size and cost of a UF system that can accommodate all incoming milk – to filter all milk to raise overall solids levels from 12% to 15%. Rather, it is more economically feasible to install a smaller (and cheaper) UF set-up that processes just a portion of the

incoming milk. How does this work out? A cheese plant concentrates (via UF) 20% of its incoming milk. The resulting concentrate – now heavy in protein and fat – is raised to 25% milk solids. Taking 20% of this concentrate and blending with 80% standard farm milk at say, 12.5% solids, yields a composite average solids level of 15%.

Ultimately, the use of UF does not improve yields per hundredweight of milk receipts. One hundred pounds of milk at standard composition yields an estimated 10.5 pounds of cheese, regardless of whether the milk goes into the vat at 12.5% total solids or 15%. Rather, the edge comes from process efficiencies and better utilization of available vat equipment.

The following model incorporates the reduced capital requirements given known vat efficiencies with front-end UF milk. The capital impact for a new greenfield plant is small. For example, instead of operating eight cheese vats, plants may only need seven to generate the same volume. The impact on operating costs is notable as well, although this is not easily measured. Utility consumption declines during the processing stage with fewer vats. The process may require fewer employees given reduced throughput. And, there is greater process control as blending UF milk on the front-end helps cheesemakers better control protein/fat ratios and moisture levels, driving overall improved yields.

Capital Requirements

Building a cheese and whey processing plant is not for the faint of heart or weak of wallet. Operations are complex and costly. Whereas powder and butter facilities cost about $100 million, a cheese and whey plant at the same intake capacity requires twice the capital. And, additional whey processing equipment to move up the protein value chain takes even more money. It all adds up to $200 to $240 million – a big price tag for an entry-level plant. Like powder and butter, equipment and building construction consumes much of the capital. However, a cheese/whey footprint is much larger than a butter/powder set-up, spanning anywhere from 200,000 to 250,000 square feet. A much larger cold storage also adds floor space.

Cheese & Whey Capital Requirements		
$ million	Estimated Cost	Specifics
Equipment	$80 - $90	Pastuerizers, silos, vats, whey dryer, evaporator, packaging
Building	$70 - $80	Cost to construct ~200,000 square foot facility
Land / Site Development	$10 - $20	Land acquisition cost, site excavation, utility infrastructure
Indirect Support	$20 - $40	Pre-engineering, permitting, legal services (among others)
Contingency	$20	Approximately 10% of total cost
Total All-In Capital	$200 to $240	

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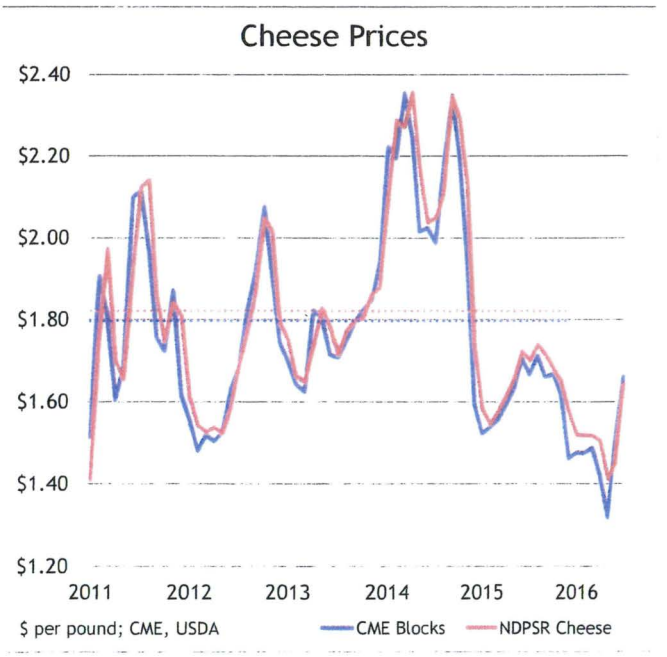
Cheese/Whey Model Inputs

In building a hypothetical income statement for cheddar cheese and dry whey, several variables from the butter/powder exercise come back into play – regional milk composition, wage rates, and utility differentials. However, with a different footprint, finished product volumes do require a short overview. The same is true for capital costs and staffing requirements, as these line items differ some from that of a NDM and butter operation.

Regional Plant Volumes			
	South Dakota	Michigan	Colorado
Milk Components			
Protein	3.15%	3.06%	3.11%
Butterfat	3.92%	3.64%	3.57%
Yield (lb/cwt milk)			
Cheese	11.2	10.5	10.5
Dry Whey	5.6	5.6	5.6
Volume (million lb)			
Cheese	119.5	112.8	112.3
Dry Whey	60.7	60.5	60.6



Regional Market Price Assumptions			
Index	South Dakota	Michigan	Colorado
Cheese (vs. CME)	$0.06	$0.07	$0.04
Dry Whey (vs. USDA NDPSR)	$0.01	$0.01	$0.02

Cheese Volumes: A typical cheddar cheese plant taking in three million pounds of milk daily can turn out an estimated 112 to 120 million pounds of cheese annually. In this exercise, variable components by region – particularly butterfat levels – shifts annual cheese yields accordingly. To estimate cheese yields, the Van Slyke cheese yield formula incorporates casein content, fat recovery, and moisture. Below are the Van Slyke formula assumptions for this hypothetical plant:

- Casein protein: 80% of total protein available
- Fat recovery: 95% retained in the cheese
- Multiplication factor: 1.13 (reflects non-dairy solids present in the cheese, including salt, enzymes and cultures)
- Target moisture level: 38.5% (an operational target to consistently produce standard of identity cheddar cheese below the 39% maximum)

Using the above formula inputs, South Dakota cheese volumes are estimated at 120 million pounds annually, seven pounds (or 7%) more than Michigan and Colorado in the 112 to 113 million pound range. But will this extra cheese volume drive enough of a regional margin differential to matter?

Dry Whey Volumes: Whey powder throughput should not vary much from location to location. Analysis of published other solids levels (lactose and minerals only) in both Central and Mideast Marketing Orders indicate little variability between the regions. Furthermore, estimates for whey protein content (only 20% of total crude protein) suggest more consistent protein content across the regions. To simplify the yield math,

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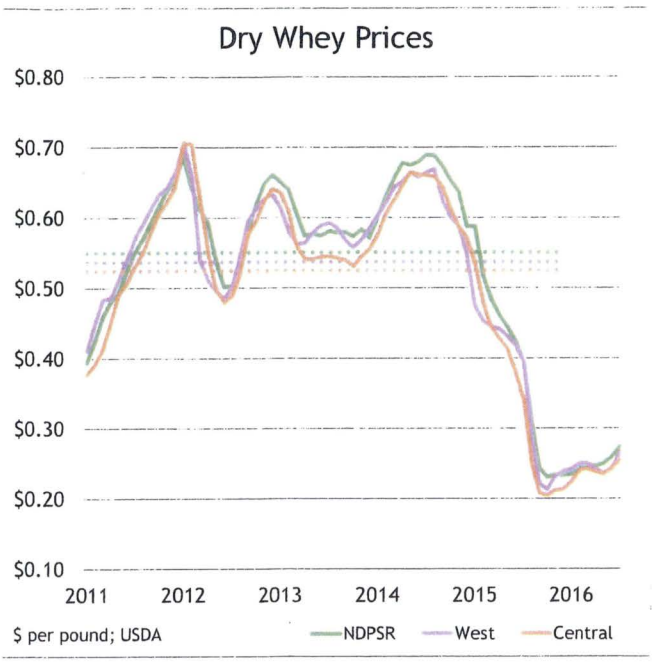
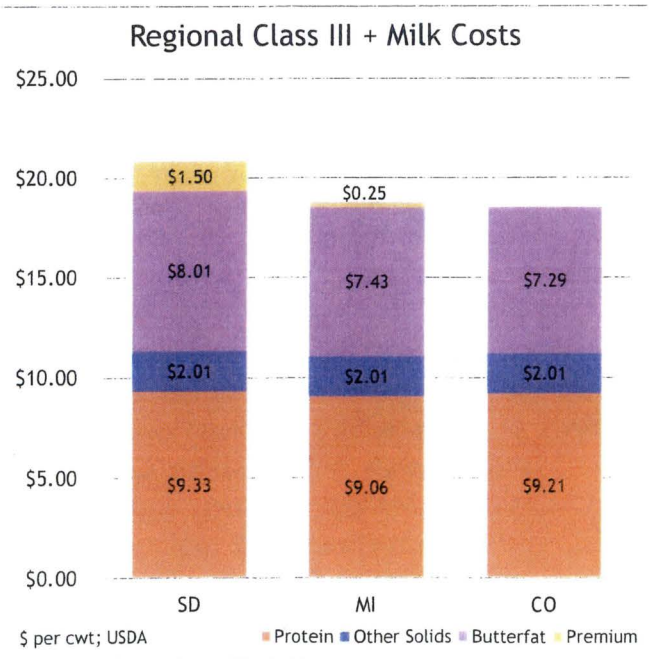
each regional plant assumes fluid whey contains 6% whey solids. Given a 1% shrink factor, the resulting spray dried product is approximately 61 million pounds at each location.

Cheese Revenues: This model cheese plant produces cheddar in 40 pound blocks. With that, revenues are directly tied to the Chicago Mercantile Exchange (CME) spot block price. From 2011 to 2015 the CME market averaged $1.80 per pound. This serves as the pricing baseline. As with NDM and butter, regional overages capture a realistic pricing surface by area. Industry contacts note product premiums ranging from $0.04 to $0.07 per pound for the regions considered. Michigan boasts the highest overage at $0.07, with South Dakota a penny behind and Colorado at four cents over the CME.





Although freight differentials and proximity to major demand centers influence regional premiums, Midwest and Mideast cheese tends to be priced a little differently. Several area commodity cheese makers are not marketing directly into retail. Instead, they ship blocks to cut and wrap operators that produce retail chunks and shreds. For cheese plants situated in the central part of the country, local product premiums tend to be based on proximity to these cut and wrap facilities – most of which are in eastern Wisconsin. Generally speaking, a centrally-located Michigan cheese operation is a couple of hundred miles closer to these finishing sites compared to a similar plant located in the eastern part of the Dakotas. This makes up about a one cent differential on the CME premium.

Whey Revenues: Similar to NDM, the model sets the baseline unit price at the USDA NDPSR price. Whey premiums also vary with market conditions, but, generally speaking, Dakotas product should fetch about $0.01 per pound over the NDPSR dry whey price. Industry sources indicate Michigan premiums are not expected to deviate much from the Dakotas. Colorado whey has a $0.01 edge over the other locations as market data shows that whey values increase the closer the product is to western ports (for ease of shipment to Asian export markets).

Milk Procurement Costs: Like the butter/powder model, the FMMO establishes a minimum class

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price that cheesemakers must pay for milk converted into cheese and whey. This average "Class III" milk price is not notably different than the Class IV price used in the butter/powder model. Here again, due to elevated component levels, the South Dakota plant pays a higher total milk price. The same regional milk premiums remain in play. The "all in" milk cost is $0.35 to $0.50 per hundredweight higher than Class IV, which is roughly the historical spread between the two classes. The Dakotas cost disadvantage does climb slightly, up about $0.10 per hundredweight compared to the other two locations. This incremental $0.10 wedge translates to an additional $1 million of "relative cost" on the Dakotas income statement. (This additional cost is off-set however due to the increased product yields that results from milk with higher component levels.)

Ingredient Costs: Cultures, enzymes, and salt used in cheese making introduce new variable costs. The model includes ingredients at $0.025 per pound of cheese (a figure referenced from the California Department of Food and Agriculture's 2014 *Manufacturing Cost Exhibit*). Summed over 112 to 119 million pounds of cheese, additive ingredient costs generate $3 million of variable expense. But, importantly, those costs should not vary by region.

Cheese / Whey P&L Comparisons			
Revenues and milk costs tied to 2011-2015 market averages	**South Dakota**	**Michigan**	**Colorado**
Plant Volume (million lb)			
Bulk Cheddar Cheese	119.5	112.8	112.3
Dry Whey	60.7	60.5	60.6
Revenues ($ million)			
Bulk Cheddar Cheese	$219.6	$208.4	$204.1
Dry Whey	$33.4	$33.3	$33.9
Total Revenues	**$253.0**	**$241.7**	**$238.0**
Milk Procurement Costs			
Class III Milk Components	$213.4	$204.1	$204.3
Milk Premium	$16.2	$2.6	$0.0
Total Milk Costs	**$229.6**	**$206.7**	**$204.3**
Variable Costs			
Direct Labor	$5.1	$5.7	$5.8
Utilities	$5.4	$5.4	$5.3
Other Variable	$11.3	$10.8	$10.8
Total Variable Costs	**$21.7**	**$21.9**	**$21.9**
Fixed Overhead Costs	**$17.9**	**$18.0**	**$18.0**
Earnings Before Tax	**($16.2)**	**($5.0)**	**($6.2)**

Labor Costs: Producing cheese and sweet whey powder is both capital and labor intensive. There is a lot of equipment involved, with a need for trained operators at each stage. The model cheese and whey plant assumes a dedicated staff of 100 employees – 86 of which are considered direct labor. The remaining 14 are plant management, included under fixed overhead. The true employment number could realistically range from 80 to 120. Since the overall headcount at a cheese plant is nearly double that of butter/powder plant, the labor cost differentials state to state becomes more pronounced. Indeed, the South Dakota labor cost advantage grows from about $400,000 in the butter and powder setup to $700,000 for cheese and whey. Note, for every 10 direct labor positions added or

removed, it translates to approximately $600,000 in absolute labor costs.

Cheese/Whey Returns

No matter the location, running a commodity cheese and dry whey facility does not yield favorable bottom line results – at least not when using five-year average market prices. On a comparative basis, regional deltas look similar to those from the butter/powder model. Again, the hypothetical South Dakota plant lags rival regions by $10 to $11 million annually, with the regional milk premium still representing most of the bottom line differential.

Precise margin math may be elusive, but the basic model should yield directionally accurate results. That said, it seems safe to assume that a commodity cheddar and dry whey operation is not a viable enterprise opportunity. And that's not just a South Dakota thing. It is true for other regions, as well. A later chapter revisits the Class III model to understand the effects of moving up the value chain in both cheese and whey and whether such a shift leads to a more advantageous bottom line. Regardless, the exercise starts to quantify the gap that exists between regions. For a firm looking to build a plant – and assuming they would attempt to maximize returns – it is easy to understand why recent plant investments have, for the most part, avoided the Dakotas.

Is Retail Cheese An Option?

The first two plant models explored regional production economics behind commodity cheese/whey and butter/powder products. In both cases, the plant financials did not favor a facility situated in South Dakota. But even if commodity cheddar and whey powder does not appear well-suited for the region, what about direct retail distribution? Is there a viable option to market directly to consumers and generate a more attractive margin profile?

> **"WHEN THOSE IN THE INDUSTRY - ESPECIALLY PRODUCERS IN THE DAKOTAS - THINK ABOUT A NEW PLANT, THEY MOST OFTEN THINK BIG."**

As noted earlier in this chapter, most commodity cheese produced in the Dakotas is likely to find its way to large-scale Midwest converters. These buyers run highly efficient operations, processing and marketing bulk cheese for both retail and food service channels. They operate large facilities with wide-spanning capabilities, producing multiple styles of cuts: chunks, loaves, horns, shreds, cubes – and each with appropriate packaging. Scale and experience also gives them a notable edge when marketing into retail where distribution costs and slotting fees are significant

barriers to entry for smaller players. Not to mention, long-standing relationships with retail chains as a supplier of private-label products. A new Dakotas cheese operation considering a retail strategy would have to compete against these massive converting operations that carry sizable price advantages and a multiple year head-start which could be near impossible to dislodge.

Those sentiments apply more, however, to commodity style cheese products - representing the types of plants modeled in this study. Think cheddar and pepper jack. Colby and Colby Jack. Even Mozzarella. When those in the industry – especially producers in the Dakotas – think about a new plant, they most often think big. Here in this study, it's about large plants, consuming large volume of farm milk, pumping out truckloads of commodity cheese.

On a smaller scale, several single-plant cheese operations have achieved success by building a brand and marketing direct to consumers. One route goes through food service where bulk packaging is the preferred order size. On paper, there are notable processing efficiencies and cost savings that can be leveraged by a large cheese producer supplying food service accounts. Most often these in-house advantages are realized when just one or two major buyers can consume all available supplies, thus minimizing any packaging complexity along with limiting sales and marketing personnel. For example, a Dakotas plant might be able to compete for food service shredded cheddar or mozzarella business. Attaching a shred line to the manufacturing plant certainly reduces some costs in the supply chain (transportation to the converter and converter margins), potentially off-setting some or all of the higher milk premiums required in the Dakotas. It might take a unique twist on the milk supply to make this happen. Maybe it's organic milk or rBST free – something restaurant chains may desire but cannot find (at the right quantity) from more traditional suppliers.

Building a brand is another option. That is, moving away from the commodity products and finding a slice in the market that is undersupplied or has yet to be created. The upside here is huge and carries with it attractive margins. The downside to the region is that such a strategy takes time to develop. And, volumes might be considered "too small" for some stakeholders. The success of Bel Brands is the most poignant example of how a value-added cheese company can thrive, and do so in the Dakotas.

Chapter 4: Moving Up the Value Chain

Theoretical commodity NDM/butter and cheese/whey plant development scenarios feature a common theme: a greenfield operation in South Dakota does not generate adequate returns

required to attract new investment. Depending on the setup, models show losses ranging from $11 million to $16 million on an absolute basis. And, other regions outperform the Dakotas in a material way.

Is there opportunity somewhere up the value chain? Are there ways to pivot toward on-trend drivers in the global marketplace? Can alternative, more specialized cheese/whey or skim offerings generate better margins in the Dakotas?

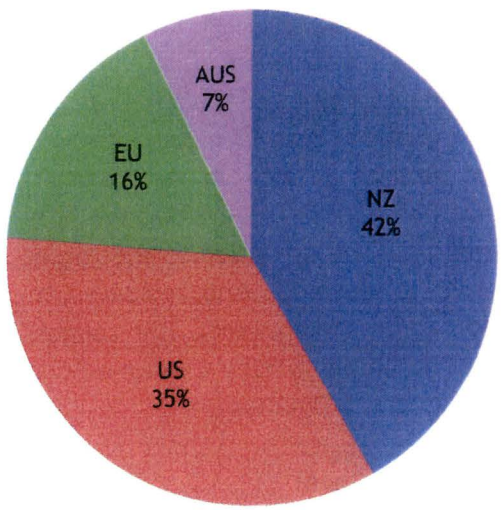
Those are logical next questions. Multiple pathways lead to more refined, value-add products in both the cheese/whey and skim space. This chapter revisits the original plant models, employing an alternative product mix and analyzing bottom line results. It is a sensitivity analysis of sorts. A profitable pro forma by itself goes a long way in attracting investment interest, even if similar plants in Michigan and Colorado can make the same value-add adjustments and reap the same relative margin advantages.

Whole Milk Powder

The Class IV category extends beyond just NDM and butter. Multiple processing options exist. Other options include whole milk powder (WMP) and concentrated milk proteins.

WMP production could generate interest on the basis of relatively low capital requirements and rising global demand. Also the production process is quite similar to NDM save for the added steps of protein and fat standardization – required for all exports given international standards. Proximity to major demand centers globally tends to be the biggest issue when producing WMP in the Midwest. WMP is an export-first product for US processors. Plants located in the West, near major Pacific ports, are ideally situated to potentially capitalize on the growing demand in this category. In contrast, a Midwest-sourced WMP supply would likely struggle to compete with more freight-competitive regions.

Estimated Global MPC Supply



2015; Blimling Estimates

It hasn't been all roses for western-based suppliers entering the WMP space over the past few years. US supply still lacks the scale and cost advantages of New Zealand – the world's largest WMP producer. Thus, it has been difficult for domestic producers to get much traction in the global market where the chief differentiating factor is price.

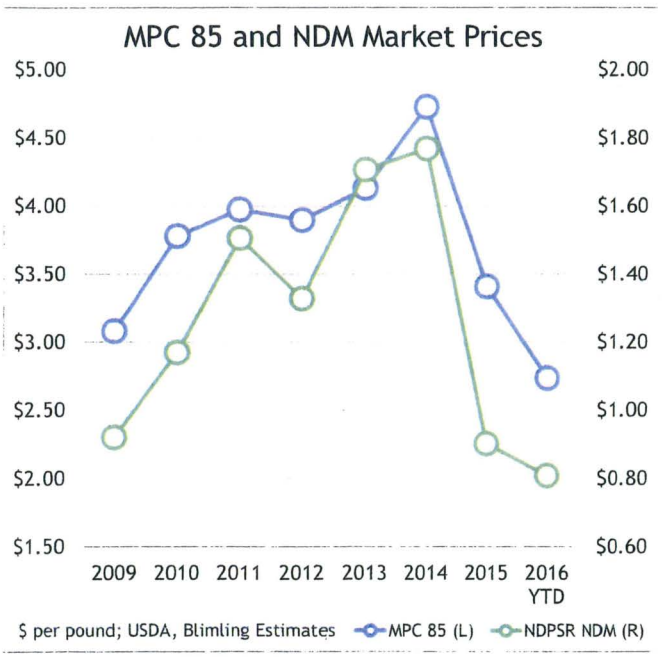
Milk Proteins

Skim milk fractionation offers a more intriguing

approach under the Class IV umbrella. Adding membrane separation equipment like ultrafiltration and/or microfiltration yields more specialized protein ingredients like Milk Protein Concentrate and Isolate (MPC/MPI), or Micellar Casein Concentrate and Isolate (MCC/MCI).

MPCs are the most established in this category, gaining popularity over the past decade with a proliferation of protein drinks, nutrition bars and Greek yogurts. In response to rapidly expanding consumption, several US processors have added MPC capabilities. From nowhere, the US emerged to take as much as a third of a global market previously dominated by New Zealand and Australia.

Milk protein concentrate containing 85% protein (or MPC 85) is the major player in the MPC category. To manufacture MPCs, the first step is to run milk through a UF step. During filtration, the larger molecules in the milk – proteins and residual fat – do not pass through the membrane. Solids retained during this process are called retentate. Smaller milk components – primarily lactose and minerals – pass through the membrane and become a by-product known as permeate. Outside water (diafiltration) is then added to thin out the retentate, which will thicken as protein level climbs. The diluted concentrate continues through the UF membranes until the solids reach 80% protein. At this point, the liquid MPC 80 goes through another filtration step – nanofiltration – to remove larger mineral salts, effectively raising the MPC solids to around 85% protein. The concentrate – now between 15% and 20% solids – is then dried and packed before going into dry storage. Elsewhere in the production process, an evaporation step condenses the liquid permeate by-product in preparation for tanker shipment or drying.



MPC 85 & Butter Capital Requirements		
$ million	Estimated Cost	Specifics
Equipment	$55 - $60	2 dryers, evaporator, churn, silos, separators, packaging lines
Building	$50 - $60	Little variance to NDM, some added complexity, more rooms
Land / Site Development	$5 - $10	Land acquisition cost, site excavation, utility infrastructure
Indirect Support	$15 - $25	Pre-engineering, permitting, legal services (among others)
Contingency	$15	Approximately 10% of total cost
Total All-In Capital	$140 to $170	

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Given its protein purity and functional properties, MPC 85 has a variety of uses. It is commonly found in nutritional beverages, yogurts, processed cheese and sports nutrition powders. Milk permeate powder also has numerous food applications, including bakery, dry mixes, confection and milk powder standardization.

MPC 85 market prices tend to correlate with NDM prices. The rationale is two-fold. First, several market participants connect NDM with MPC on a pure protein basis, despite little overlap in composition and end-use application. Secondly, MPC was traditionally priced on a SMP-basis so as to align New Zealand product costs with farmer payout prices. But amidst softer NDM/SMP markets from 2014 to 2016, weakness did not entirely spill over to the MPC market, benefitting MPC producers.

Case in point: from 2010 to 2014, MPC 85 prices averaged $4.10 per pound while NDM averaged $1.50 – a 2.7 multiple. In 2015 however, MPC 85 prices held firm relative to NDM, yielding an average multiple of 3.8. Through September 2016, MPC prices moderated relative to NDM but multiples remained elevated at 3.4. The higher multiple in low markets suggests MPC prices are less volatile than those for commodity NDM; that can lead to a notable margin opportunity in the Class IV space.

What might production volumes look like and how much upfront capital would be needed for an MPC plant in the Dakotas? Do they differ dramatically from a standard NDM and butter operation? A MPC plant processing three million pounds of milk daily yields approximately 38 million pounds of MPC 85 annually. The same facility would also produce about 56 million pounds of milk permeate and 57 million pounds of bulk butter (no change from the original Class IV model).

From a capital standpoint, the investment does run higher than a NDM and butter operation. In short, the skim processing looks a bit different with the addition of membrane filtration and a permeate dryer. These two elements add approximately $30 million of incremental capital costs when compared to the baseline NDM and butter scenario. The original spray dryer used to process NDM would now dry MPC. But, because the protein throughput would be 40% of the equivalent NDM volume, the dryer is not quite as large. In total, capital requirements are likely to run in the $140 to $170 million range, about 25 to 30% more than a similar-sized commodity powder facility.

Class IV Processing Options		
Revenues and milk costs tied to 2011-2015 market averages	NDM & Butter	MPC 85, Permeate & Butter
Revenues	$250.2	$280.9
Milk Procurement Costs	$233.2	$233.2
Variable Processing Costs	$17.1	$21.7
Fixed Overhead Costs	$10.7	$14.8
Earnings Before Tax	($10.5)	$11.2

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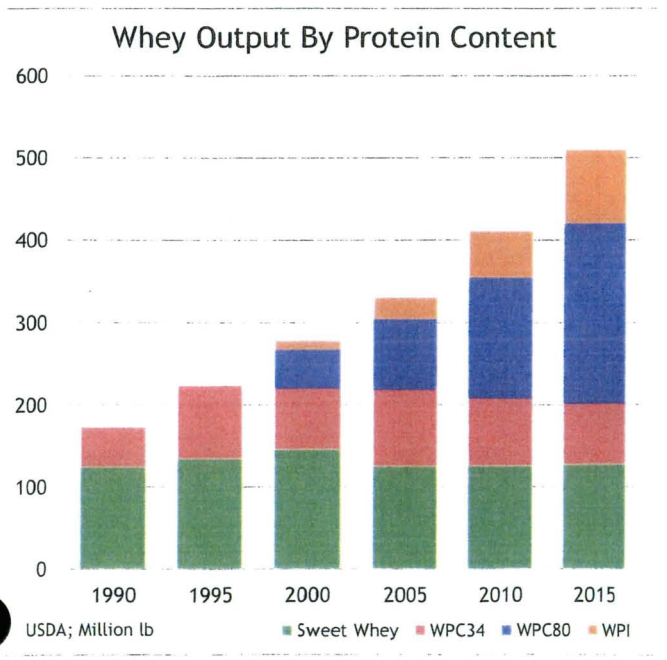
Revisiting the Class IV case and replacing the NDM operation with MPC and permeate (including necessary adjustments to revenues and operating expenses) creates an intriguing shift in plant margins. Plant income not only moves into positive margin territory, it climbs to $11 million. Moreover, the model shows return on capital of 6 to 7% – far more attractive (+$22 million) than a basic NDM/butter operation. In other words, if there was capital that was looking to invest solely in the region, than the MPC option provides a better alternative compared to straight butter/powder.

An MPC business is not without risk, though. First, investing in additional MPC capacity could, over the short to medium term, threaten domestic market stability. A new MPC plant would bring an incremental 38 million pounds to the market, increasing domestic supply by an estimated 20%. That's a sizable impact to any market, especially one that relies heavily on domestic consumption. Secondly, a portion of US MPC demand has historically come from Canadian cheesemakers seeking cheaper skim solids compared to domestic nonfat. But new Canadian milk pricing policies are making local skim milk more competitive, choking off a good portion of liquid MPC/MPI export opportunities.

Long Term Potential with Microfiltration

Opportunities in fractionating skim milk go beyond ultrafiltration and value-added MPCs. Microfiltration (MF) is another membrane technology gaining favor in the US and in Europe. What makes microfiltration different than ultrafiltration? Simply put, MF effectively filters individual protein fractions. Micellar casein – the primary protein yielded by microfiltration – is a budding opportunity for US processors. Micellar casein is very similar to MPC 85 or MPI (90% protein) but with some slight variations in functional properties. Its composition is also different than MPC. Whereas MPC retains the natural 80:20 casein/whey protein ratio in raw milk, most micellar casein specifications exhibit a ratio closer to 90:10, as the smaller whey protein components fall out into the permeate. Those whey protein components boost permeate value, influencing some processors to look at add microfiltration capabilities. Why the superior value? This type of permeate – labeled native whey – has composition on par with cheese whey, but with less fat. Native whey is a better all-around product compared to its cheese-whey peers. It is not affected by cheese cultures and enzymes, nor does it involve a second pasteurization step (whey proteins are highly heat sensitive). Ultrafiltration can



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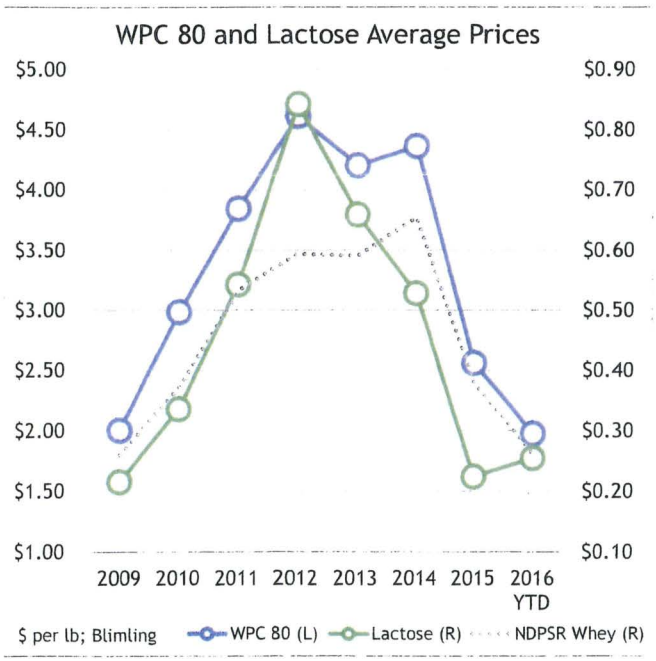
further concentrate native whey to make high protein powder – powder priced at notable premiums to similar cheese-derived whey proteins.

Adding microfiltration on top of ultrafiltration/MPC operation may be a wise long term strategy for some Midwest processors. As market demand develops for MF products, the capability to switch from UF to MF provides unique flexibility allowing a processor to capitalize in an evolving marketplace. Furthermore, simply adding microfiltration on top of an existing filtration system is not considered a major capital investment.

Diversifying the Cheese Mix

The commodity cheddar/dry whey model from Chapter 3 depicted a basic Class III operation that, in theory, should not vary across regions. But adjustments to the cheese production mix might allow a South Dakota plant to operate with more favorable financial results.



Class III Processing Options		
Revenues and milk costs tied to 2011-2015 market averages	Cheddar & Dry Whey	American, WPC 80 & Lactose
Revenues	$253.0	$271.3
Milk Procurement Costs	$229.6	$229.7
Variable Processing Costs	$21.7	$25.5
Fixed Overhead Costs	$17.9	$20.6
Earnings Before Tax	($16.2)	($4.5)

The original cheese model used commodity cheddar (116 million pounds) built around 38.5% moisture target – a key input to the Van Slyke cheese yield formula. But what if the production mix expands to allow for higher moisture cheeses like Colby and Monterey Jack? This opens the door for higher throughput while also adding flexibility for American cheese processing. With a 40% maximum, Colby requires minimal tinkering on moisture (just a hair above cheddar's 39% ceiling), while Jack carries a maximum of 44%. For this sensitivity exercise, a composite moisture average of 41% reflects an even share of Cheddar, Colby and Jack cheeses. Dropping this new moisture value into the Van Slyke yield calculation leads to an incremental 5 million pounds of cheese for the model Dakotas plant.

But higher volume does not always translate to greater margins. Higher moisture means lower cheese solids. And, lower cheese solids typically means lower product pricing. Industry sources note that Colby and Jack cheeses fetch a couple cents below CME spot cheddar values, on average. So the question becomes: would this additional volume outweigh a price reduction? The alternative cheese product mix does in fact improve model plant returns by $6 million over the original baseline scenario

from Chapter 3. While this doesn't wipe away the initial $16 million shortfall under commodity cheddar, it does make a notable dent.

Moving Up the Whey Value Chain

Over the past decade, whey protein's value in the food and beverage industry has skyrocketed. But, supply finally caught up with demand in recent years, putting pressure on prices. While the market may be more commoditized today than it was five years ago, new applications for whey protein continue to roll out. And with increasing demand expected in the coming years, high protein products like whey protein concentrate 80% (WPC 80) and isolate (WPI) should continue to hold some added value over more generic whey products like sweet whey powder. Lactose – a by-product of whey protein production – is also in high demand from infant formula, milk powder standardization and confection users.

Replacing dry whey with WPC 80/lactose production in the revised cheese/whey scenario involves several adjustments to the Dakotas model plant. For starters, high protein and lactose processing require more equipment and ultimately more floor space. Additional equipment includes an ultrafiltration system to separate the whey protein and lactose constituents, plus specialized concentration equipment and a drying system for lactose. In total, installing WPC 80 and lactose capabilities can cost an additional $30 to $40 million over that of a dry whey operation. Consequently, this additional capital drives up plant fixed overhead costs. With more specialized equipment and additional production stages to manage, variable operating costs invariably go up – most notably direct labor, utilities, maintenance and quality assurance.

WPC 80 yields are small. Indeed, 100 pounds of whole milk yields just 0.6 pounds of whey protein. With that, annual WPC 80 volumes for the model plant work out to an estimated 6.7 million pounds of finished product.

Lactose comes from the permeate stream filtered out of WPC or WPI production. Since milk carries about 4.7% lactose (compared to just 0.6% whey protein), output is exponentially greater. The model plant assumes annual lactose output at approximately 33 million pounds – or about 5 pounds for every pound of WPC 80 produced. Not all lactose can be commercially harvested, as capture rates vary between 60% and 75%. The "leftover" lactose and mineral stream creates a product called delactosed permeate, or DLP. The model plant assumes an estimated 14.5 million pounds of DLP solids. Although DLP carries limited commercial value, it requires little added processing and is usually piped into tankers and given to area farmers for feed.

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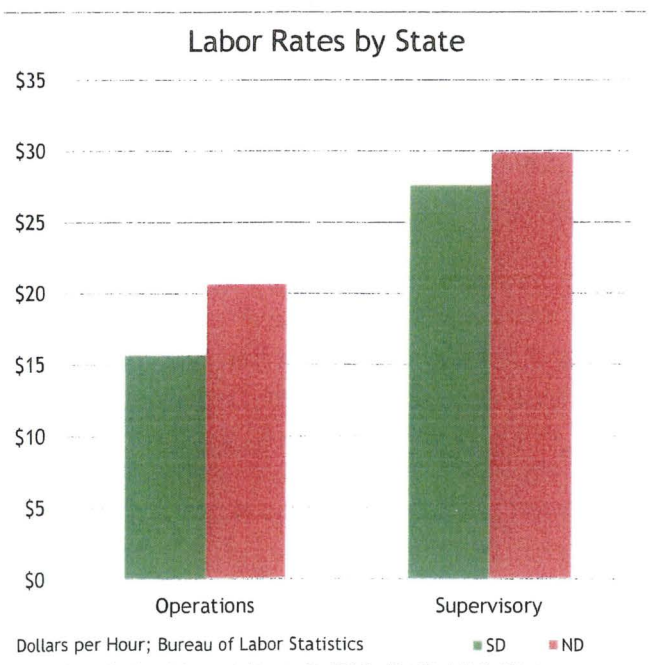
WPC 80 and lactose prices are anything but stable. From 2010 to early 2013, strong demand and scarce supplies fueled a surge in prices for both products. In classic economics fashion, however, high prices cured high prices as processors added capacity, spurring a market correction that lingered into 2016. But, market prices should trend higher the next couple years as new applications for WPC 80 boost demand in a way that absorbs excess supply. Lactose upside has more limitations as demand is more stable and the market is well -supplied, particularly out of Europe due to post-quota capacity expansion. Rising sweet dry whey prices – driving whey solids cost for US processors – should also support high-protein whey prices.

Does the model Dakotas plant realize enough margin improvement from these revised whey processing assumptions? The P&L impact is notable, improving the bottom line by another $6 million. Rolling in both mix changes (cheese and whey) generates a $12 million swing in plant income. While plant margins remain in the red at -$4.5 million, this sensitivity analysis underscores the importance of production diversity within the cheese and whey category. At the end of the day, though, even these alternative processing adjustments still do not get a Dakotas cheese/whey plant out of negative margin territory. (They would however for a plant in Michigan and/or Colorado.) The milk premium continues to weigh heavily on the bottom line, despite the value-add improvements.

Chapter 5: North versus South

Throughout this study, South Dakota served as the proxy location for a "Dakotas" based dairy processing plant. While limited data prevents a full scale mock-up of a North Dakota plant, some known parameters offers a useful sketch.



A North Dakota processing plant would likely sit in the Southeastern part of the state where it would draw from the same milk supply as a South Dakota plant. Technically, milk composition does differ between the states but this is a moot point when building comparative plant models. But beyond milk composition, relative gaps in market pricing, milk costs and utility rates can be examined. Noting some variations in these areas should help differentiate financial gaps to the South Dakota models.

On the basis of freight, cheese or milk powder coming out of North Dakota would likely carry a slight discount over product sourced out of South Dakota. For instance, 190 miles separate Brookings

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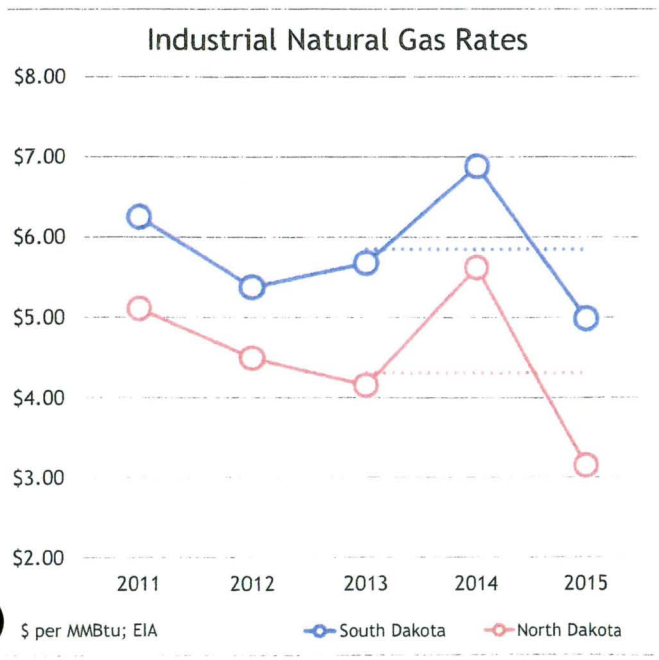
and Fargo. That distance would not likely swing market prices, or more specifically, overages to the CME. But, even a half cent per pound impact could drive a $500,000 variance.

Differences in the states' milk premiums are hard to determine, as noted earlier in this section, USDA only reports South Dakota milk prices. But it seems reasonable to expect that milk premiums between the states are similar, especially assuming a plant in either state would likely draw from the same milk shed.

A cheese/whey or powder/butter plant is not expected to look or operate any differently in South Dakota or North Dakota. However, operating costs could differ. With respect to labor costs, significant wage differentials exist for both operational and management personnel. According to the Bureau of Labor Statistics, North Dakota labor rates are substantially higher than South Dakota, with production wages 30% higher and supervisory/management costs 8% higher. The wage gaps yield a sizable $1.5 million impact, in favor of South Dakota. But this wage differential should be taken into some perspective. Some of the gap is likely due to North Dakota's oil and gas industry – situated in the western part of the state – representing a sizable amount of the state's operational jobs. Since a dairy plant would likely reside in the Southeastern part of the state, it may not have to compete directly with the higher-paying energy jobs. That said, the North Dakota labor market could be a risk going forward. Although low oil prices hit the energy industry hard in the past couple years, a sustained market rebound could pull more jobs back to the western reaches of the state.



Natural gas prices also drive differences in operating costs between the states. North Dakota picks up a near $2 per MMBtu advantage due to its proximity to Bakken oil and gas drilling activity. This rate differential drives an estimated $350,000 discount on the plant utility bill. (The model assumes electricity rates and water usage/disposal are the same between states, hence the natural gas advantage.)

In total, the plant adjustments favor South Dakota. The freight-related discounts and higher labor costs yield a near $2 million wedge between the two states.

Conclusions

Regardless of hypothetical production mix, bottom-line financial performance makes the Dakotas a

challenging sell for prospective dairy manufacturers. Compared to these other "central" milk sheds, a plant in South Dakota runs at a $10 to $15 million deficit while a North Dakota operation might have another $2 million of downside. That is a large, glaring hole for a prospective investor not predisposed to any one region.

Local milk premiums are a predominant factor in the regional margin gap. Whereas areas like Michigan and Colorado feature over-order premiums at $0.25 per hundredweight or less, milk supply in and around the Dakotas fetches at least $1.25 more. That's a $14 to $16 million disadvantage for the region. The financials just don't pencil.

However, it is important to recognize this region features several other favorable aspects which might appeal to companies looking to add processing capacity. The next section will examine some of the other dimensions of the industry in this region to provide a more well-rounded analysis on processing projects in the Dakotas. ■

A VISION FOR DAIRY IN THE DAKOTAS

Part III: Crossing the Producer-Processor Divide

Introduction

IN THE SUMMER OF 2015, OFFICIALS FROM NORTH AND SOUTH DAKOTA REALIZED THEY HAD A PROBLEM. OR MAYBE AN OPPORTUNITY.

Across the country, companies and government officials touted new dairy manufacturing facilities. Most were hundreds, if not thousands, of miles away. Dairy producers here are willing to expand and grow, that much is given. But why not build a new plant in the Dakotas? Answers were elusive.

Seeking to find some answers, and possibly forge a path forward, the North Dakota Dairy Coalition and the State of South Dakota combined to commission a study. The goals? Educate and inform dairy stakeholders about US trends in both milk production growth and plant investments. Review comparative economics in plant operations between regions. Evaluate the strengths and weaknesses of the Dakotas when it comes to attracting new investments. Provide some strategies about how to move forward. The study is organized in this manner. Four parts bound by a common theme.

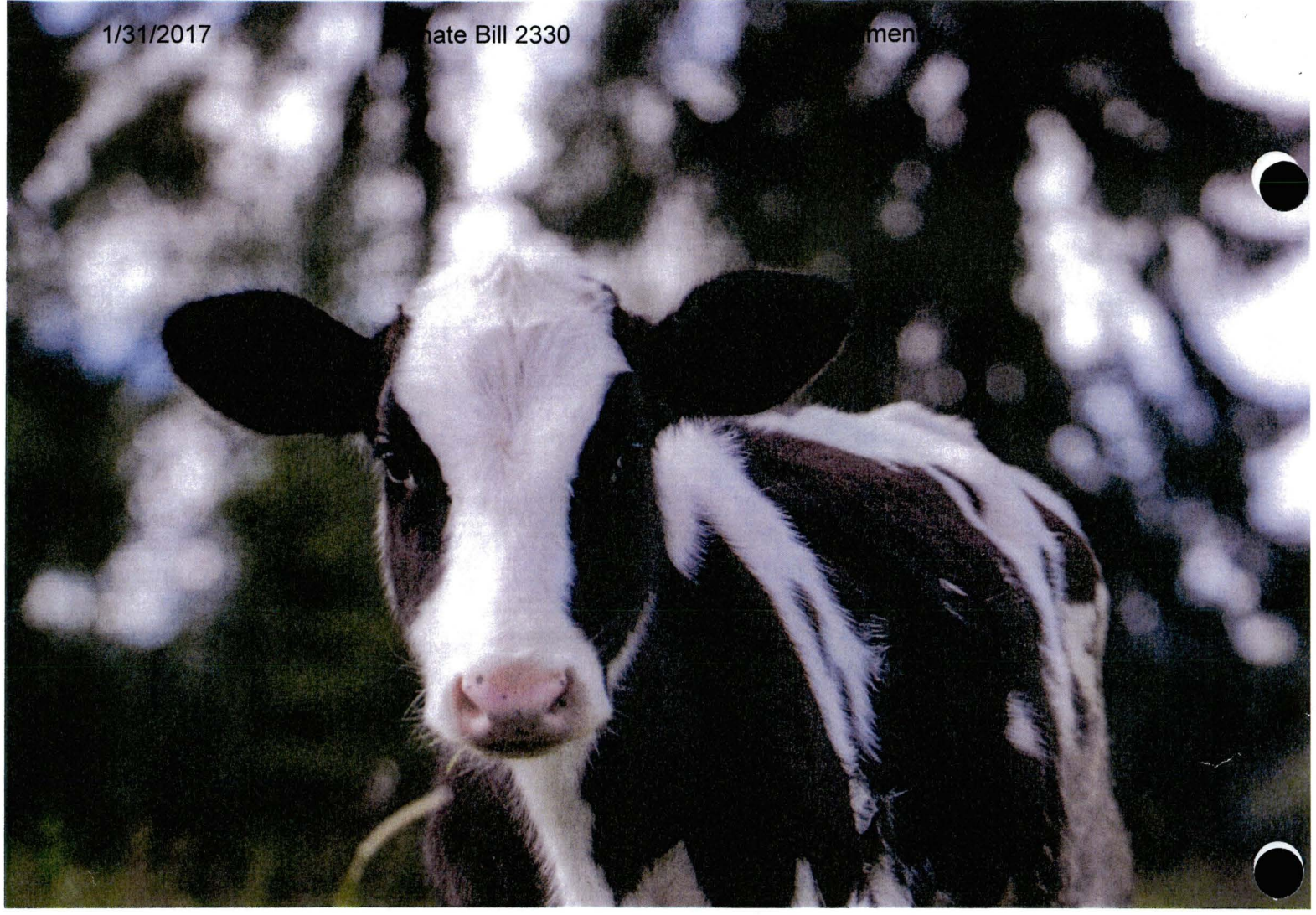
Part I examined regional milk supply growth and dairy processing expansions around the US. For the Dakotas, processing investments have lagged compared to farm level interest in expansion. Part II quantified financial returns between hypothetical processing plants located in South Dakota, Michigan, and Colorado. While the results varied, a Dakotas plant falls $10 to $15 million short on an annual basis compared to a similar plant operating in another region. **SINCE DAIRY PLANT LOCATION IS ABOUT MORE THAN PRICE, PART III EXPLORES OTHER FACTORS PROCESSORS CONSIDER WHEN MAKING AN INVESTMENT**

DECISION. This includes financial aspects such as milk price, Federal Order participation, and hauling costs. Milk market characteristics also differentiate one region from another. Local infrastructure and government support is a plus in the Dakotas, but that may not be enough today to offset economic returns compared to other regions. And finally, Part IV proposes options the states could consider to successfully attract new processing investment to the region.

This project is not all encompassing. It does not provide a step-by-step manual that will radically alter the current course overnight. Rather, the intent is to provide a clearly defined starting point. Summarize where the Dakotas fit into the broader US dairy landscape. Talk about the advantages and disadvantages a processor would enjoy or encounter by doing business in the region. And, when possible, quantify the economic costs of manufacturing dairy products in the Dakotas compared to other growing milk regions. With this research in hand, stakeholders will better understand the problem(s) to solve. More important, they may also begin to see the associated costs and possible pathways to get there. The findings should become a key input into future conversations and planning events, as the effort moves from the conceptual to actionable.

About the Authors

Blimling and Associates, author of this series, is a widely respected dairy consulting and research firm. The Blimling team combines extensive dairy/commodity market experience with economics/finance backgrounds. Intimate working knowledge of the marketplace, detailed data analysis, exceptional critical thinking skills, numerous relationships around the world, and a demonstrated commitment to robust but clear communication power the Blimling client services platform. And, the team knows the region. Clients from the Dakotas have been on the customer list for 20 years. Additionally, since 2013 Blimling has been active in the region completing three separate rounds of research for the Midwest Dairy Association, including the seminal piece, *A Path Forward* from 2014. ■



It's good to be a dairy producer in the Dakotas. Access to plentiful feed and water means lower cost of production. High milk prices and premiums yield some of the highest farm margins in the country. Combine that with a friendly business environment and, naturally, producers want to expand. But, someone has to buy the milk – and buy it at prevailing prices – to make it happen. Those buyers for new milk at today's premiums are few and far between, creating angst for ambitious producers.

"IN [THE I-29 CORRIDOR], PLENTY OF PROCESSORS SAY THEY ARE WILLING TO TAKE MORE MILK, EXPAND EXISTING PLANTS, OR EVEN BUILD NEW ONES. BUT, PRICE MATTERS."

The I-29 corridor milk shed stretches across the five-state area from southeastern North Dakota, through western Minnesota and eastern South Dakota, all the way down to the corners of northeast Nebraska and northwest Iowa. In this area, plenty of processors say they are willing to take more milk, expand existing plants, or even build new ones. But, price matters. Milk is available. To the frustration of many processors, however, it's still too expensive.

Crossing the Producer-Processor Divide

Everyone wants more of a good thing. Producers want to make more milk at current prices. Incumbent processors want to procure more milk, but only at lower prices. Consequently, producers struggle to find willing buyers or homes for new milk among the region's existing processor community. It's a stalemate that leaves everyone a bit frustrated. Producers. Processors. Local communities. State agencies.

The situation has producers and processors looking outside the region for a solution. Dairy producers want new buyers to enter the market and build big plants. A new face, new demand for milk, and maybe even higher premiums. Local communities throw in millions of dollars in incentives to aid the cause.

On the other side, processors actively support recruitment efforts to relocate farmers from California or even the Netherlands to the Dakotas. New cows, more milk, and maybe a chance to ease premiums. Economic development agencies join the delegation at trade shows, touting the benefits of dairying in the Dakotas. Both efforts are mildly successful in attracting new faces but not enough to radically reshape the playing field.

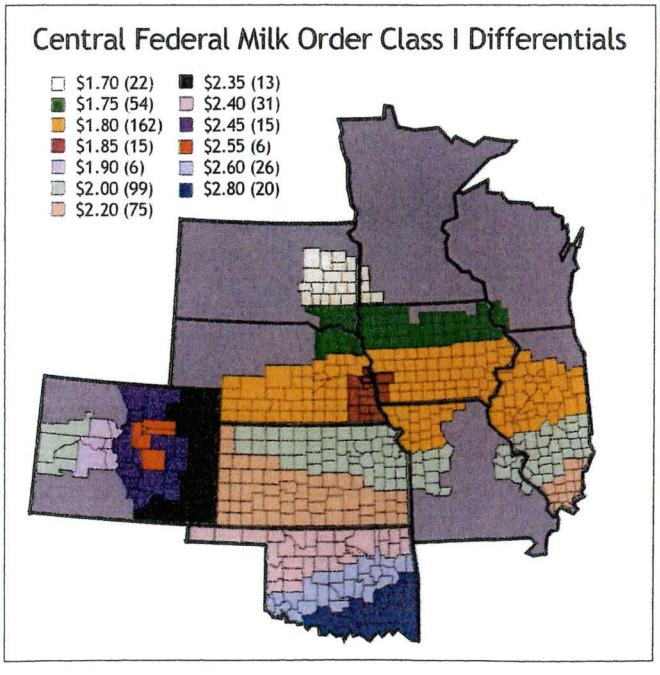
After reviewing dairy plant investment in Part I, investment is clearly unfolding elsewhere in the US. Part II dug into the finances of a hypothetical plant investment, quantifying the region's disadvantages compared to Michigan and Colorado – mostly tied to milk premiums. Now Part III explores other key factors – both favorable and unfavorable for the Dakotas – that matter when deciding where to locate a dairy plant.

"LOCATION DECISIONS CENTER ON A COLLECTION OF ECONOMIC FACTORS INCLUDING MILK PRICES, FREIGHT COSTS, TAXES, INCENTIVES, LABOR AVAILABILITY AND BUSINESS CLIMATE. IN THE END, THE DECISION COMES DOWN TO MONEY."

Processor Considerations for Investment

"Show me the money!" It's a line we've heard before, but it continues to ring true when it comes to dairy plant investment. Manufacturers invest hundreds of millions of dollars in plant infrastructure to make money. Location decisions center on a collection of economic factors including milk prices, freight costs, taxes, incentives, labor availability, and business climate. In the end, the decision comes down to money. This section evaluates the regional characteristics dairy plant investors are looking at. Specifically, it compares the I-29 corridor to other areas of potential dairy investment from the processor's perspective.

Compared to other regions, I-29 milk is expensive. That's good news for dairy producers, but lousy for investors. Milk premiums in the region range $1.50 to $2.00 per hundredweight over Class. Western states like California and New Mexico have much lower All Milk prices, averaging $2.00 to $3.00 per hundredweight less than the I-29 corridor. Similarly, prices in Idaho average about a $1.50 less. Michigan is often talked about as the next place to build a plant, and for good reason. Premium levels there dropped precipitously following several years of milk surplus. And, Michigan is nearly 2,000 miles closer to heavily populated East Coast consumer markets.

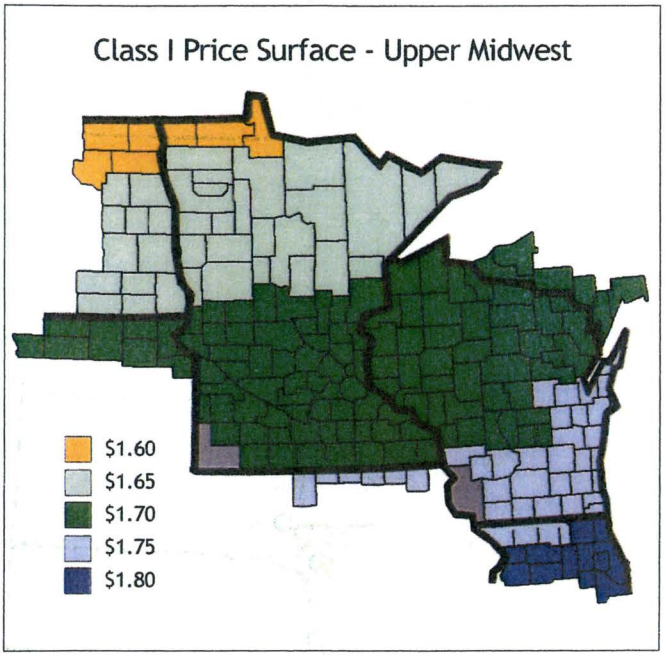


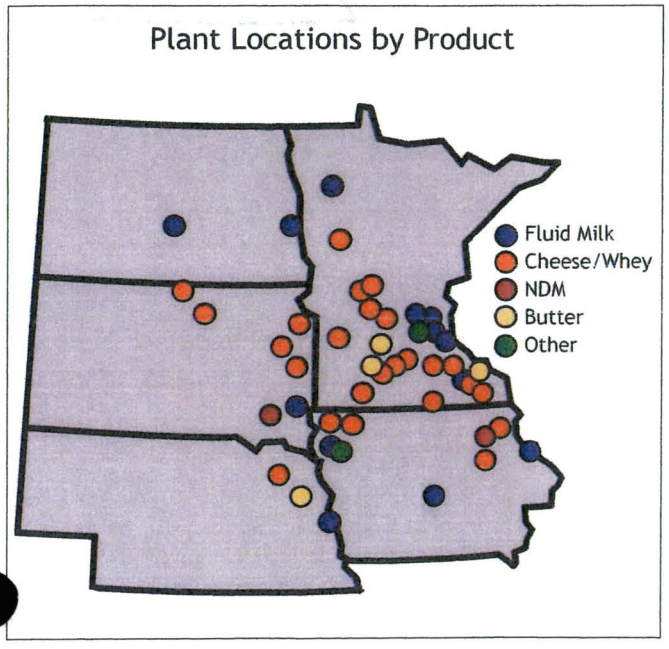
Negative: At the risk of being repetitive, money is the story in the Dakotas. Locating in the Dakotas means paying a premium of about $2 per hundredweight compared to $1 or less in other regions. Putting that $1 per hundredweight premium differential in perspective, a processor buying one million pounds of milk per day in the Dakotas would spend about $3.5 million more every year. But, new dairy plants typically handle much more than that – more like three or five million pounds daily. For a three million pound plant, that's $11 million more per year – a big hurdle.

Processors can operate in or out of federal orders. Federal Milk Marketing Orders (FMMO) govern milk pricing in most of the US. Complex to operate and manage, the FMMO aims to facilitate orderly milk marketing and equalize income for all producers in a region. For processors in most of the US, FMMO participation is an economic necessity. In order for a cheese plant or butter/powder operation to compete for milk supplies, they must participate in the FMMO pool. Why? Milk used in fluid bottling commands the highest price, and the FMMO shares the revenue among all producers. In order to get these dollars, processors must ship milk to a fluid bottler directly or pay someone else to do so on their behalf. Processors use these pool dollars to pay a competitive price to dairy producers because returns from cheese or powder alone are not enough. There are not many pool dollars in the Dakotas, however. The region simply does not have enough fluid milk drinkers and is too far from larger population centers. Consequently, cheese plants can stay out of the pool and still attract milk supplies.

Positive: Processors have flexibility in establishing their pay prices for milk. They can pay a standard FMMO blend price plus premium, a cheese yield formula, or their own unique formula to compete for milk supplies.

The Dakotas don't have much plant capacity to balance surplus milk. This excess capacity is simply referred to as "balancing capacity" as it runs only periodically to smooth out the milk supply and demand ebbs and flows. Sometimes it's seasonal, when milk production peaks in the spring at a time when demand is structurally slack. Balancing plants often run full over holidays when normal buyers want to send their crews home for a long weekend. Demand also fluctuates, especially for plants making highly perishable products for customer orders, so milk usage can be predictably unpredictable. Other manufacturing milk sheds feature more balancing capacity. This capacity is generally dedicated to making storable dairy products like nonfat dry milk. But in the Dakotas, there is only one small balancing plant, primarily used to address fluid milk demand fluctuations. Manufacturers do have some local alternatives. They can, for example, ship excess milk to cheese plants. But space is limited. When those plants are full, milk has to move outside the region, typically at a loss. Seller costs range anywhere from $1 to $10 per hundredweight depending upon market conditions. And that's before hauling. True balancing plants are at least 150 miles away. Assuming a hauling rate of $2.50 per mile, taking milk to the nearest plant could run close to $1 per hundredweight.





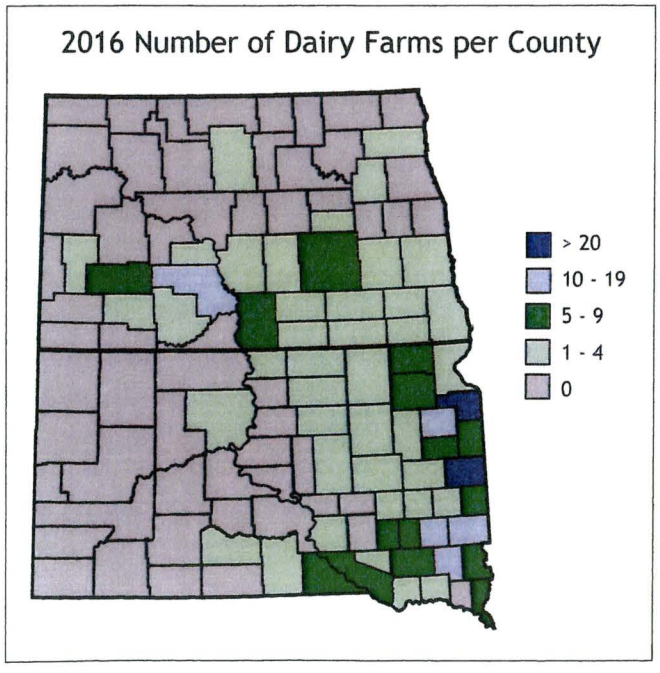
Negative: Processors of higher valued dairy products (those that can afford to pay higher premiums), often face variable demand patterns and only produce to fill orders. Cows, of course, produce milk every day. So plants buying milk directly from producers have to deal with surplus milk. The lack of regional balancing capacity requires a new plant to plan for surplus milk sales at a loss or balance itself. Both options add significant financial costs to already high milk premiums.

Milk in the region is not traveling long distances, reducing hauling costs. While North Dakota and

South Dakota cover a vast expanse, most of the cows and manufacturing facilities are concentrated along Interstate-29. Processors in this region also receive milk from Minnesota and Iowa, often from less than a one-hour drive away. Recent farm expansions are also helping cut freight costs as dairy producers intentionally build near milk buyers.

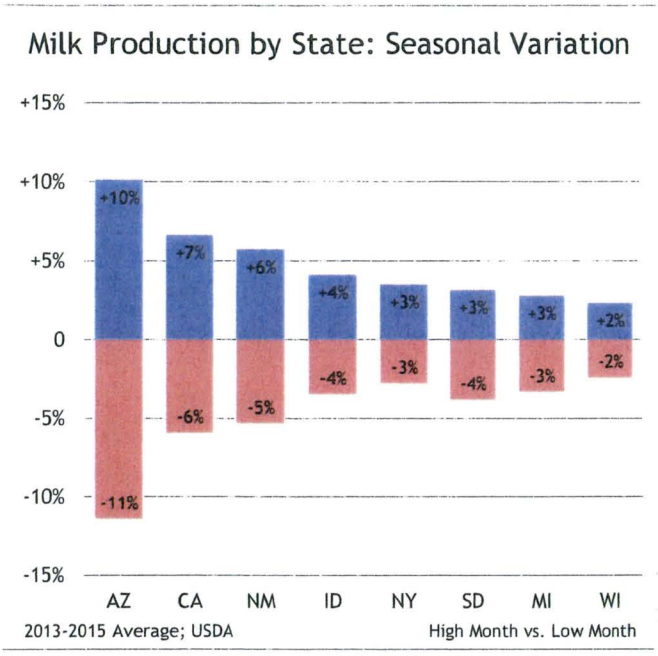
Positive: Shorter hauls mean fewer miles, a smaller carbon footprint, reduced fuel cost, and less price volatility risk. For producers – who ultimately pay for hauling – lower transportation costs mean bigger mailbox checks each month.

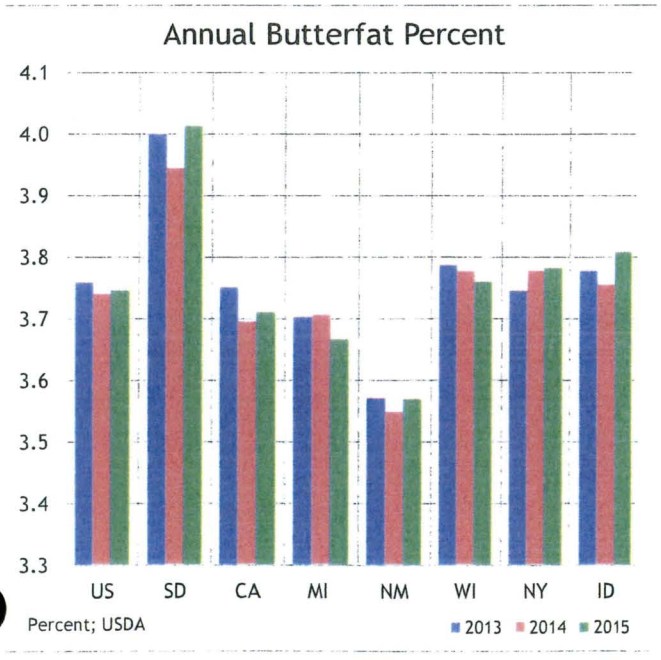
Limited surplus milk exists in the Dakotas today. Firms looking to expand dairy processing operations logically wonder: where will the milk come from? In markets like Michigan or the Northeast – regions with balancing capacity – excess milk is already available. Today, in the Dakotas, surplus milk moves into cheese plants or travels long distances to find processing homes. In Michigan or New York, the milk is re-directed to a new plant as fast as it's built. In the Dakotas, buyers must either pay a premium to attract milk from another buyer or coordinate growth with local dairy producers. This coordinated growth between farms and plants is a successful model for the Dakotas. Local firms leverage their long-standing relationships with local producers to grow in tandem. But that approach involves a leap of faith when contemplating filling plants sized at three to four million pounds per day. Sure, there are plenty of producers who say they are willing to expand. But....if I build it, will they really come? In 2014, Davisco CEO Jon Davis said that his company would double the size of its Le Sueur plant if the milk was available. According to news reports, construction would start when cows materialized. "We can't do much without the milk," he said. The public proclamation is missing reference to the underlying producer-processor divide: price. Lots of plants would expand if the premium was $0.50 per hundredweight. It's all more posturing if dairy producers want $1.50 and plants want to pay $0.50.



Negative: Milk availability is often as important as price. A new plant can't make money if it doesn't have the milk to run. With the coordinated growth model, local milk buyers accepted the short term costs to balance milk when milk arrived before the plant was ready. But for an outside firm considering the Dakotas, simultaneously building new relationships, coordinating milk supply growth, and constructing a new plant could be daunting.

Milk volumes don't vary as much seasonally. Milk volumes can vary dramatically over the year due to many factors such as cow nutrition, extreme weather, and seasonal calving patterns. Arizona illustrates an extreme: there, milk supplies vary plus or minus 11% from the annual average, mostly due to cow discomfort from high heat. The more temperate Upper Midwest does not see those extreme swings, with intakes deviating just 5% around the annual average. South Dakota, in particular, conforms to that model, with 4% average variation a three-year period.





Positive: Less seasonal variability in milk supply means less need for internal balancing. That can make things less intimidating for a new plant in a region lacking dedicated balancing assets. Theoretically, it also means that manufacturers can better optimize plants to maximize capacity utilization and lower operating costs.

South Dakota milk consistently leads the nation in butterfat content. USDA data shows average farm milk fat content for the US at around 3.75% from 2013 to 2015. During that time, South Dakota topped the charts at 3.99%. Producers in the region are improving cow comfort, breeding cows for higher butterfat yield, and/or owning breeds with higher component production like Jersey.

Positive: High butterfat content benefits most types of processors. The same volume of milk yields more finished products. For example, Jersey cows produce 28% more fat and nearly 17% more protein in their milk than Holstein cows. This translates to 2.5 pounds more cheese for every 100 pounds of milk processed. Although the higher component milk does cost more, the product yield gains outweigh the cost. Processors making high fat products can use more butterfat from raw milk, which typically costs less than purchased cream.

Large dairy farms make up most of the milk supply in the I-29 corridor. For the Dakotas, the average herd size is roughly three times bigger than the average Wisconsin farm. South Dakota dairy farms average 416 head, nearly twice the national average. The size of dairy farms ups the stakes around relationships between dairy producers and their milk buyer. Because there is not much surplus

milk in the region, it is hard to backfill lost volume, especially on short notice. For processors entering the region, this dynamic adds an element of risk – the human relations factor – to milk supply.

Negative: Under most circumstances, the predominance of larger farms with lower production costs counts as a positive. Large producers offer benefits in terms of efficiency, management, and productivity. But that discounts a critical market dynamic in the Dakotas: large farms have a measure of market power. From a procurement perspective, the competitive environment may trump scale advantages.

South Dakota State University's (SDSU) Dairy and Food Science Department provides world-class training and technical expertise. SDSU's dairy department is churning out new talent and new innovations for the dairy industry. Students earn degrees in dairy production, dairy manufacturing, and food science. The campus's Davis Dairy Plant, renovated in 2011, has full-scale equipment that gives students hands-on experience in a modern dairy plant. Further, faculty and extension staff actively research dairy product processing and dairy food safety.

SDSU Dairy Science	
	Number
Faculty	11
Technical Staff	10
Undergraduate Students	108
Graduate Students	29
Fields of Study	3
Dairy Manufacturing	
Dairy Production	
Food Science	

SDSU Dairy Science

Positive: A highly trained and experienced dairy workforce is a benefit to employers locating in the Dakotas. Technical support from SDSU is also available. Brookings Economic Development Corporation cited SDSU's presence as a reason Bel Brands located in Brookings.

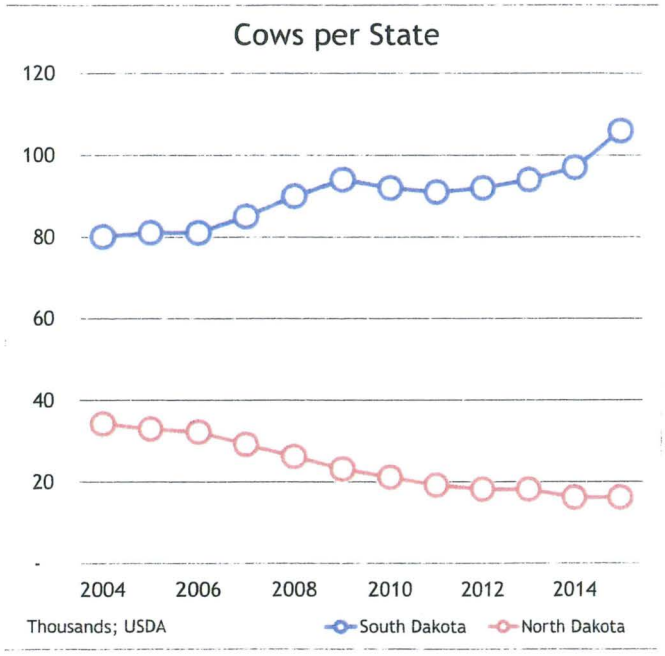
Farm ownership laws in the region are inconsistent, limiting milk supply growth to the North. Both states have laws on the books limiting corporate ownership of agricultural lands. In 2008, South Dakota exempted dairy operations. It is probably no coincidence that the state added 16,000 cows in the seven years that followed. In

2015 Average Herd Size			
	Cows per State (thousand)	Operations per State	Cows per Operation
New Mexico	323	150	2,153
California	1,778	1,465	1,214
Idaho	585	520	1,125
South Dakota	106	255	416
Michigan	408	1,880	217
North Dakota	16	90	178
Wisconsin	1,279	9,900	129
New York	618	4,830	128
United States	9,317	43,584	214

USDA

North Dakota, laws actively restrict ownership today. For example, once a farm business incorporates, only immediate relatives can join an ownership group. Although there have been efforts to change the laws, North Dakota voters rejected a 2016 referendum to allow corporate ownership and operation of dairy farms up to 640 acres of land. And it wasn't even close. The measure failed by a 3-to-1 margin. Proponents believed it would allow farmers to more easily make shared investments and are pursuing legal action to change the law.

Negative: Any limit to milk supply growth is a deterrent as it creates price and supply risk for investors. For corporate entities looking to expand in the region, the referendum's failure forces them to look elsewhere.



Tax structures and business incentives in the Dakotas are generally favorable. South Dakota is the only state in the nation where there is no corporate income tax, no personal income tax, no personal property tax, no business inventory tax, and no inheritance tax. The state also offers low interest rate loans, sales/use tax rebates, and property tax abatements to attract investment. North Dakota boasts some of the nation's lowest income tax rates for both individuals and corporations. Costs for unemployment insurance and workers compensation are also comparatively low.

Positive: Light taxation and heavy incentives burnish South Dakota's appeal to prospective investors. In 2012, the state put together a $21.6 million package to encourage Bel Brands to build a new facility in Brookings. The city offed up permitted land, grants, electrical and utility improvements, and tax

2015 Tax Rates				
	Top State Marginal Individual Income	Corporate Income	Sales	Average Local Sales
South Dakota	0.0%	0.0%	4.0%	1.8%
North Dakota	3.2%	4.5%	5.0%	1.6%
Michigan	4.3%	6.0%	6.0%	0.0%
New Mexico	4.9%	6.9%	5.1%	2.2%
Idaho	7.4%	7.4%	6.0%	0.0%
Wisconsin	7.7%	7.9%	5.0%	0.4%
New York	8.8%	7.1%	4.0%	4.5%
California	13.3%	8.8%	7.5%	0.9%

Tax Foundation

incentives worth $11.8 million to sweeten the deal. The state also kicked in nearly $10 million in loans for equipment and construction.

The Dakotas offer a generally business-friendly climate. State and local governments welcome new economic activity, and in particular, animal agriculture. State agencies demonstrate relative flexibility and amazing speed for government when issuing permits for new dairy operations. Millions are available in economic development incentives for new processors. South Dakota invests in SDSU to support dairy education, extension, and workforce training. State agencies commission studies like this one to find even more ways to attract business to the Dakotas.

Positive: The doors are open for new business investment in the Dakotas. The message from every level of government is clear: We want your business, and we'll make it attractive for you to be here.

Stalemate

For dairy producers, all signals are go for expansion. High margins, ample feed and water, lots of arable land, permitted or permit ready locations. State recruitment efforts attract producers from outside of the region — even outside the country — to build new dairies. The only challenge — and it's a big one — is finding willing buyers at prevailing milk prices. Dairy producers have demonstrated that they are not willing to expand for significantly less money.

For processors, building a plant in the Dakotas seems like a good idea in theory, but the math makes it a difficult place in practice. Other regions feature ample milk, at much lower cost. And, when all is said and done, milk price tends to seal the deal. For a time, between 2010 and 2015, the Dakotas saw significant infrastructure investment. Bel Brands in Brookings, SD. Green Meadows (now Agropur) of Hull, IA. Valley Queen's expansion in Milbank, SD. But the tide has slowed, and a series of major plant investments is bypassing the I-29 corridor. Processors have demonstrated that they are not willing to expand at current milk prices.

> **"IS THERE A RIGHT NUMBER TO KEEP DAIRY PRODUCERS PROFITABLE AND YET ENTICE NEW PROCESSING CAPACITY?"**

So what does the chess board look like? Anecdotally, expansion-minded dairy producers say that local buyers won't pay current premiums on new milk. They see offers at around $1 per hundredweight less. Dairy producers say the pay is too low and postpone expansion plans, not wanting to lower premiums for their existing dairy. Is there a premium at which dairies could expand and still be

adequately profitable? From the processor perspective, Part II showed that new commodity processing plants are roughly $1 per hundredweight behind other regions. Much of this gap is attributed to milk premiums. Is there a business model that could pay more for milk? Is there a right number to keep dairy producers profitable and yet entice new processing capacity?

What breaks the impasse? That's what Part IV considers. ■

A VISION FOR DAIRY IN THE DAKOTAS

Part IV: Why the Dakotas... and Where?

Introduction

IN THE SUMMER OF 2015, OFFICIALS FROM NORTH AND SOUTH DAKOTA REALIZED THEY HAD A PROBLEM. OR MAYBE AN OPPORTUNITY.

Across the country, companies and government officials touted new dairy manufacturing facilities. Most were hundreds, if not thousands, of miles away. Dairy producers here are willing to expand and grow, that much is given. But why not build a new plant in the Dakotas? Answers were elusive.

Seeking to find some answers, and possibly forge a path forward, the North Dakota Dairy Coalition and the State of South Dakota combined to commission a study. The goals? Educate and inform dairy stakeholders about US trends in both milk production growth and plant investments. Review comparative economics in plant operations between regions. Evaluate the strengths and weaknesses of the Dakotas when it comes to attracting new investments. Provide some strategies about how to move forward. The study is organized in this manner. Four parts bound by a common theme.

Part I examined regional milk supply growth and dairy processing expansions around the US. For the Dakotas, processing investments have lagged compared to farm level interest in expansion. Part II quantifies and compares financial returns between hypothetical plants located in South Dakota, Michigan, and Colorado. While the results varied, a Dakotas plant falls $10 to $15 million short on an annual basis compared to a similar plant operating in another region. Since dairy plant location is about more than price, Part III explored other factors processors consider when making an investment decision. Overall, the Dakotas are mixed in terms of

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favorability as a location for a new dairy plant. **AND FINALLY, PART IV PROPOSES OPTIONS THE STATES COULD CONSIDER TO SUCCESSFULLY ATTRACT NEW PROCESSING INVESTMENT TO THE REGION.** Attracting smaller value-added enterprises builds on the successful Bel Brands model in Brookings. In other regions of the country, producers are stepping forward to build the plant themselves. Since profitability holds back plant expansion in the region, more aggressive government assistance could fill the gap. Finally, there is a more hand-offs tack to consider as well. That is, allowing market forces to work, marked by slow yet gradual expansion at both the farm and plant levels. Last, advantages of the Dakotas are highlighted to offer hope for the future.

This project is not all encompassing. It does not provide a step-by-step manual that will radically alter the current course overnight. Rather, the intent is to provide a clearly defined starting point. Summarize where the Dakotas fit into the broader US dairy landscape. Talk about the advantages and disadvantages a processor would enjoy or encounter by doing business in the region. And, when possible, quantify the economic costs of manufacturing dairy products in the Dakotas compared to other growing milk regions. With this research in hand, stakeholders will better understand the problem(s) to solve. More important, they may also begin to see the associated costs and possible pathways to get there. The findings should become a key input into future conversations and planning events, as the effort moves from the conceptual to actionable.

About the Authors

Blimling and Associates, author of this series, is a widely respected dairy consulting and research firm. The Blimling team combines extensive dairy/commodity market experience with economics/finance backgrounds. Intimate working knowledge of the marketplace, detailed data analysis, exceptional critical thinking skills, numerous relationships around the world, and a demonstrated commitment to robust but clear communication power the Blimling client services platform. And, the team knows the region. Clients from the Dakotas have been on the customer list for 20 years. Additionally, since 2013 Blimling has been active in the region completing three separate rounds of research for the Midwest Dairy Association, including the seminal piece, *A Path Forward* from 2014. ■

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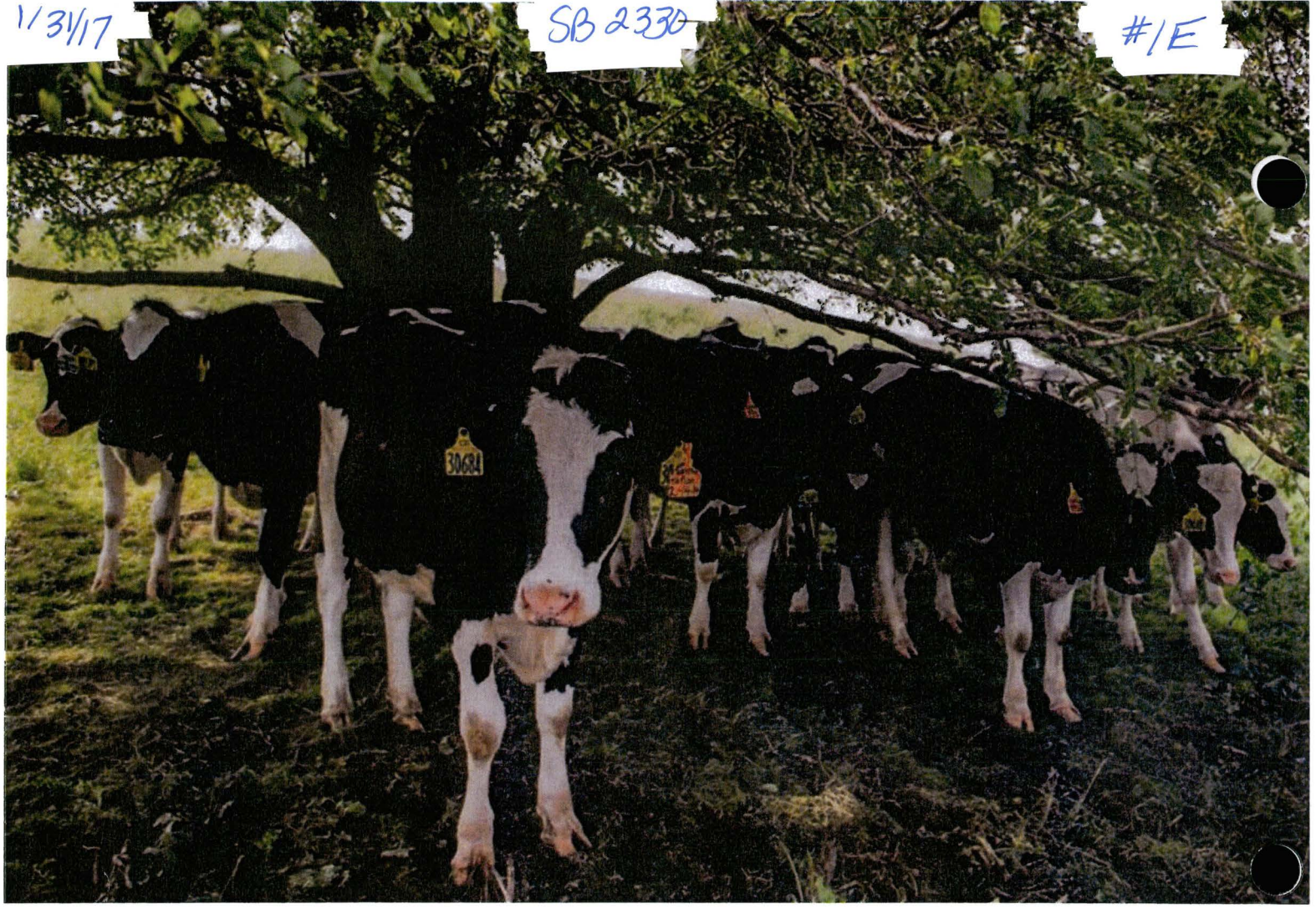

Producers and processors are gazing at each other across a wide divide. From the producers' perspective, if they initiate expansion, taking $1 per hundredweight less for their milk (the current going rate for "extra" milk) is too low. So, producers wait. They know the Dakotas are attractive: growing dairy region with feed and water, the ability to flexibly manage FMMO pricing, business friendly regulations, and lower operating costs. While the permits, feed, and contractors are ready, dairy producers postpone expansion.

"WHILE THE PERMITS, FEED, AND CONTRACTORS ARE READY, DAIRY PRODUCERS POSTPONE EXPANSION."

From the processors' side of the divide, the decision to overlook the Dakotas is simple. When looking at the economics, Part 2 demonstrated that the return on new capacity in the Dakotas is well below other regions. Somewhere between $10 and $15 million lower. Annually. On a milk basis, that equates to about a $1 per hundredweight. Not surprisingly, investments happen in other states. The facts support this: Bel Brands was the only new plant built in the Dakotas in recent years.

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Good places for cows and good places for processing don't have to work at recruitment when the financials line up. Some might point to recent – or forthcoming – plant expansion as proof that there really isn't a problem. But, that overlooks good reasons for existing plant expansion. Valley Queen in Milbank, South Dakota and Agropur in Hull, Iowa expanded within existing plant footprints at lower capital costs than greenfield construction. In these cases, willing buyers coordinated with producers to invest in profitable new farm capacity to fill plant capacity. Now, with all the local plants reportedly running full and new plants going up in other regions, something "needs" to be done.

None of this is a secret. People are working through the necessary processes to understand and address issues. The region has too many good things going to stay out of the game for long.

Breaking the Stalemate

Many believe that something has to happen. Few have been willing to make the first move. So: who goes first? How does the industry break the stalemate? Closing the producer-processor divide requires something different. What options do the Dakotas have to make growth and investment accelerate? Here are ideas that could fit the region, either independently or in combination:

Option 1: Find the Next Bel Brands

The simple option. Sort of. Just find the next value added player that needs milk, but where milk price is not the primary decision criteria. Bel Brands' selection of Brookings as the location for its new plant is a good model for the Dakotas.

> **"NOW, WITH ALL THE LOCAL PLANTS REPORTEDLY RUNNING FULL AND NEW PLANTS GOING UP IN OTHER REGIONS, SOMETHING 'NEEDS' TO BE DONE."**

Following this model requires a shift in economic development efforts. It means turning away from the large commodity plants that make for good headlines but live or die on milk price levels. Investors are not signing up for a $10 to $15 million per year gap versus other regions any time soon. Instead, pitch a different audience on the region's strengths of business friendly regulations, low cost utilities, and talented dairy labor. Tout the Dakota's benefits at trade shows aimed at smaller-scale food companies. Look for marketers that have outgrown their co-packers and need to build in a central location with the ability to scale up. Advertise in different trade magazines to attract companies already selling at retail. Scout the supermarket dairy case, industry publications, and product competitions to find

new and novel dairy products – then contact those companies about expanding in the Dakotas. Maybe it is a beverage. Maybe it's a specialty cheese. Think small-to-medium and "alternative" product instead of the commoditized dairy products like cheese or powder. To use a baseball analogy, focus on doubles and singles, rather than swinging for the fences and whiffing.

While that's a nice plan on paper, it has some downside. Specifically, individual, specialized plants will probably not take big volumes of milk. Building a few small plants will likely take longer-than desired before having a material impact on milk demand.

Option 2: Producer-owned processing investments

Producers want to grow, so what if they take on the processor's role? Producers elsewhere have taken the leap, investing in large-scale processing facilities. Often enough, they pursue the investments in response to undesirable marketing options, whether lack of market control or perceived low pay prices. One farm family did it alone. Others include small groups of producers forming cooperatives. The "investors" committed all or some of their milk supply to new entities to ensure supply during the critical start-up years. Individual financial investments ranged from anywhere from ten to 40% of the initial capital requirements, ranging from $6 to upwards of $40 million. Most of the ventures skew toward the lowest upfront capital costs, meaning a powder plant. Two examples center around cheese.

Of course, building a new plant is far from easy. Which producers have the necessary ambition? Outsiders don't see the significant effort and resources owners put in even before a shovel breaks ground. Nor do they see the many failed attempts that consume substantial time, resources, and cash. Starting a new processing plant from the ground up can take years, if not decades, of work. And remember, dairy producers already have full time jobs running their dairy operations.

So what could the state do to help support this alternative? What if the state started a dairy-focused economic development incubator? Typical incubators have low-cost office space shared by potential entrepreneurs, the "tenants." The better incubators offer business support or experienced managers to coach tenants. Imagine the hum and excitement in a world-class dairy incubator. Experienced dairy plant consultants roam the halls to provide expertise... "I've seen that before. Here's why it didn't work and what we did to solve it." Participants welcome – rather than dread – visits from state officials and regulators. Angel investors scrutinize multiple business plans in a shared conference room on one trip from New York. Food science graduates from the local university have job interviews in that same

conference room with the new companies. Successful tenants get special access to grants and loans – a means to attract good business models to participate and then help them get off the ground.

But, cost is still the elephant in the room. Producer-owned commodity plants face the same $10 to $15 million deficits identified in Part II. If producers build a plant, they have an important decision to make: what do they pay themselves for the milk. With a vertically integrated business, profits can shift between business units. The owners decide on the milk price with full responsibility for both farm and plant P&L numbers. If they pay a competitive price for the Dakotas, the plant losses money. Can't do that for long. So, most likely they will have to take something off the milk price to make the business plan viable. As we saw in Part II, it probably means a $1 per hundredweight to break even.

Is that all bad? Looking at income over feed estimates, South Dakota dairy producers are receiving the highest margins in the country.

Producer-Owned Processing Operations			
Name	**Cayuga Milk Ingredients**	**DFA / Arla Foods**	**Valley Milk**
Location	Aurelius, NY	Livingston, NY	Turlock, CA
Start Date	2014	2017	2017
Product Mix	Milk Powders, Milk Protein Concentrate, Cream	Cheddar Cheese, Whey	Milk Powders, Milk Protein Concentrate, Cream
Investors	NY dairy producers 40%	DFA 70%, Arla 20%, Eight NY dairy producers 10%	Five CA dairy producers and Consulting firm
Cost (millions)	101	58	--
Milk Receipts (mil lbs/day)	2	--	2.5
Employees	58	30	55
Today	Operating, challenged by changing Canadian laws	Under construction	Under construction

Producer-Owned Processing Operations				
Name	**Green Meadows Dairy**	**High Desert Milk**	**Idaho Milk Products**	**Kansas Dairy Ingredients**
Location	Hull, IA	Burley, ID	Jerome, ID	Hugoton, KS
Start Date	2008	2008	2009	2012
Product Mix	Cheddar Cheese, Whey Protein Concentrate	Milk Powders, Butter and Cream	Milk Powders, Milk Protein Concentrate, Cream	Milk Protein Concentrate, Cream
Investors	One IA dairy producer	Six ID dairy producers	ID dairy producers	KS dairy producers
Cost (millions)	--	--	--	20
Milk Receipts (mil lbs/day)	2.5	2	3	2.5
Employees	85	150	118	60
Today	Sold to Agropur within one year of operation	Operating, expanding butter production	Operating	Operating, no phase two expansion

Public news reports; Blimling

There appears to be room to take less and still come out ahead. So farmers could grow (at a smaller margin) and still preserve milk price on their existing base and for the entire market.

Here's another benefit vertically-integrated operations feature: dedicated and fully traceable milk supplies. Producer-owned plants process at least as much milk as the owners directly control. Plants do not lose milk supplies to competition, particularly during the vulnerable start-up phase. Also, direct control of milk supply is an attractive feature to high end customers. Milk supply traceability and safety are important to a growing number of consumers. Consistent product, high quality inputs, and fresh milk from local farms are attractive claims.

Option 3: Government assistance to close the gap

Capital dollars for dairy plants are out there...they just aren't coming to the Dakotas. From a purely economic view, processors do better in other places. Up to $10 to $15 million a year better when looking at a large, modern, commodity dairy products plant.

Maybe producers can invest, but that $10 to $15 million would likely come of the milk price they "pay" themselves. Getting a producer to take a $1 per hundredweight hair cut might be a tough sell.

What if there was a way to make that $10 to $15 million difference go away? If the economics were essentially the same between regions, would it make a difference? What if there was a way to get some sort of funds to level the playing field? Then if the economics were essentially the same, the Dakotas could potentially "win" new investments on other merits. The friendly business climate, leading economic incentives, central US location, skilled and available labor pool, and thriving dairy industry would tip the scales to the Dakotas.

"IF THE ECONOMICS WERE ESSENTIALLY THE SAME BETWEEN REGIONS, WOULD IT MAKE A DIFFERENCE?"

State and local governments vying for new business investment often wield economic incentives. It's standard operating procedure to attract manufacturing, warehousing, data centers, call centers, low tech, high tech, corporate offices, and even dairy plants. North and South Dakota are already experts at incenting business development. Both states consistently rank at the top for business friendly locales.

But, if dairy investment is truly a priority, standard approaches and programs appear insufficient. Typically, those programs sweeten the pot for new businesses. They provide a little extra reason to choose one state over another. The programs are usually not designed to

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make up for significant market differences. They don't typically fill a $15 million gap like those observed between dairy processing in the Dakotas and states like Michigan or Colorado.

What else can governors and economic development offices do? For the dairy industry, the simple answer might be, "Do More." Use existing enticement programs and services as a base – just augment them to feature dairy and its special characteristics. Recognize the unique market realties confronting dairy processors face and work hard to bridge the divide. Maybe create a "dairy processors" fund that takes a bite out the upfront capital costs. Pay for land development and waste water treatment facilities. Provide capital at no interest. Offer performance incentives based on the volume of milk processed and total employee payroll. Do whatever it takes so outside processors know that even if they have to pay more for milk in the Dakotas, they still will be better off building a plant in Fargo or Brookings.

Such programs – or merely the mention of them – might face stiff political scrutiny. Some might scoff at using taxpayer dollars to essentially subsidize one industry, when those same dollars might not be available for other sectors. But, the payoff for such a program is potentially large, especially if the desire is to help further diversify the region's agricultural and economic profile.

New dairy plants bring two major benefits. Jobs are a direct benefit, both in the plant and in ancillary industries. The larger benefit – but more difficult to quantify – involves everything contributing to the milk production filling up a plant. New dairies built create more dairy jobs. With more cows around, there's another local market for crop farmers. There will be more trucks on the road moving the milk to the plant. That means more drivers and more fuel consumed. All of this has ripple effects in the local community.

"ADDING IT ALL UP, A NEW DAIRY PLANT GENERATES OVER $580 MILLION IN ECONOMIC IMPACT ANNUALLY."

It's not hard to quantify the benefits of a $100 million dairy plant investment. From Part II, a three-million-pound milk per day powder plant creates about 55 full time jobs. That payroll translates to roughly $3.9 million annually in direct benefit. Depending on the economic multiplier used – studies range from 2.7 to 6.8 – communities benefit to the tune of at least $10 million per year.

Then, there is the entire farm base. At 2015 productivity rates, making another billion pounds of milk to fill a plant requires 50,000 cows. That provides an opportunity for twenty new 2,500 cow dairies. And, in dollar

terms, that's an incremental $200 million in new farm revenues (based on 2015 milk prices). That produces an additional $300 million in economic impact using a low-end multiplier of 1.5 for farm milk income. Beyond milk, 20 new 2,500 cow dairies would create 700 dairy farm jobs with an annual payroll of roughly $18 million and nearly $50 million in annual economic impact. Further, more cows expands local feed markets, offering potentially better returns for local crop farms.

Adding it all up, a new dairy plant generates over $580 million in economic impact annually. While commodity dairy prices are cyclical, food production is a more stable employer than other sectors like energy. A $15 million per year targeted dairy plant investment certainly pays off for the local economy, if these numbers are correct.

While working to attract new processors, existing processors should be equal candidates for expansion. Government assistance could encourage expansion by dairy processors who already know the benefits. Further, their investment cost may be lower. As a defensive play, the Dakotas should be mindful of potential consolidation of fluid bottling operations. The large fluid bottling plants in the region – Dean Foods at Sioux Falls, South Dakota and at Bismarck, North Dakota and Kemps at Fargo, North Dakota – are decades old and likely in need of modernization. They are competing with state of the art bottling plants like Kroger's Mountain View Foods in Denver, Colorado. Fluid margins are razor thin, so investment is hard to justify, especially in a high premium market like the Dakotas. Losing these high value milk sales would be a blow to dairy producer returns. Government support may be necessary to keep them.

One last thought... Options 1, 2, and 3 may not be mutually exclusive. They could be complementary. Government economic support might be just as necessary to support private investment as producer-owned or cooperative investment. Looking for value added dairy plant investment generates more revenue for milk payroll and local tax rolls. If the state gives millions in economic support to outside companies, giving millions to a current resident makes as much sense. Targeted dairy assistance could give producers confidence to take the leap and only require a slight trim of their pay price.

Economic Impact of Three Million Pound Dairy Plant		
(million dollars annually)	**Direct**	**Indirect**
Plant Wages	$3.9	$10.5
Farm Wages	$18.6	$50.3
Milk Sales	$199.7	$299.6
Total	$222.2	$360.4

Public news reports; Blimling

An idea that could bring these Options together would be a "hub and spoke" plant. It's a new, modern dairy plant with multiple dairy processing tenants

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under one roof. All tenants share milk receiving and testing, maybe separation and pasteurization, too. The individual mini-plants receive milk through a pipe in the wall. For example, Plant 1 is the anchor tenant and takes half the milk received at the facility. Plants 2 to 5 have small value-added processing operations with one or two lines in a room. Shared cooler space and truck load-out bays could even allow one truck to pick up many products for distribution. The smaller plants may share Quality Assurance staff to support modern food safety practices. It's a concept that could support a new product from dairy incubator through commercialization.

Now, many questions would need answers to make this idea a reality. Who funds and owns the plant? Who provides the milk and at what cost? Who operates the shared services? What are a tenant's obligations and lease terms? The states could play an important part in the success of a shared "hub and spoke" plant. Any of the following roles are possible: silent partner, angel investor, long-term shareholder, landlord, or shared services manager.

Option 4: Let the Market Work

Dairy producers in the Dakotas are profitable. By most standards, highly profitable. Dairy processors in the Dakotas are competitive. They sell millions of pounds of dairy products annually. Both producers and processors would like to grow, but neither finds current prices desirable for expansion. Is there really a problem, or is the market in equilibrium?

"Allowing the market to work" implies that dairy plant investment might not occur in the Dakotas, or at least will unfold at a slower than desired pace. Today, the price landscape suggests investors should build elsewhere. As long as milk premiums remain high in the Dakotas, processors won't build greenfield capacity here.

Income over Feed			
	All Milk Price	Calculated Feed Cost	Income over Feed
South Dakota	17.50	7.60	9.90
Minnesota	16.80	7.29	9.51
Wisconsin	16.60	7.47	9.13
Iowa	16.60	7.76	8.84
Texas	16.70	8.49	8.21
Kansas	15.40	7.63	7.77
Colorado	16.20	8.70	7.50
Michigan	14.80	8.50	6.30
United States	16.10	8.39	7.71

$ per hundredweight; USDA NASS, SDSU; July 2016

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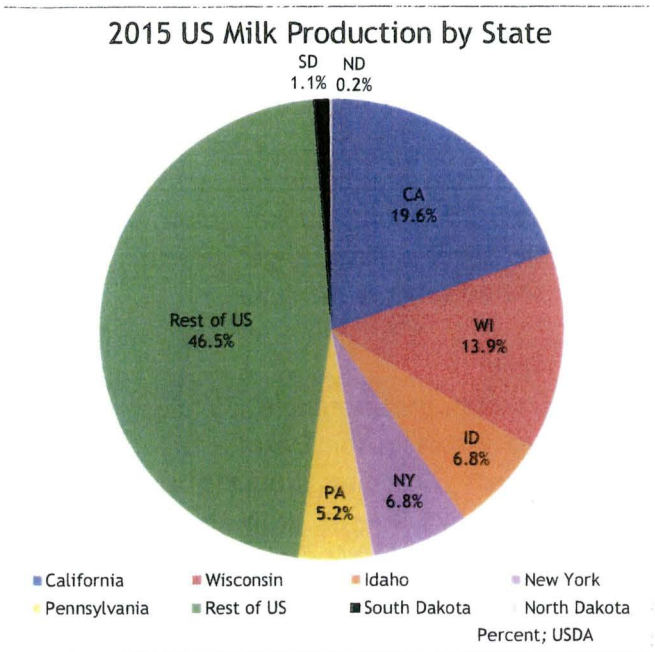
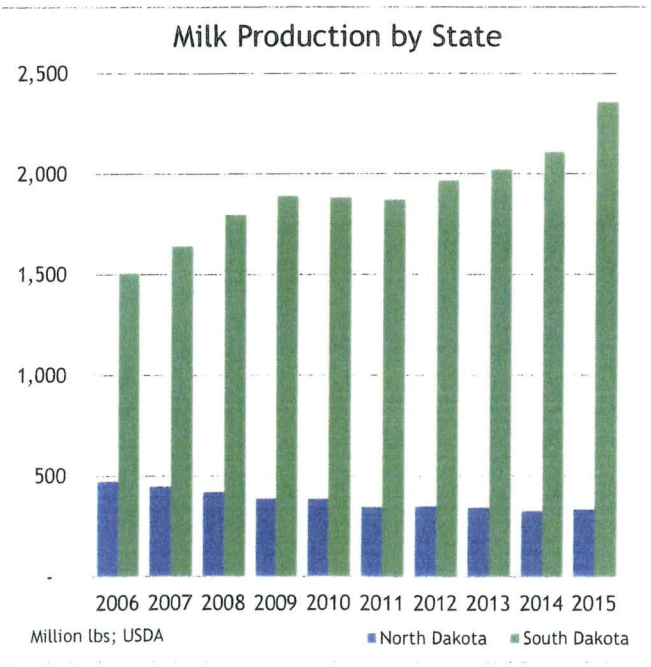
On the supply side, higher premiums should, on balance, attract more cows to the region and encourage modest milk production growth. Farm profitability is driving growth – double digit milk production growth, in fact. Over time, as supply increases, premiums should come down. If new farms are willing to take less than the current market premium, they will soon find willing buyers. To some degree, this is already happening with premiums down by a couple nickels and dimes in recent years.





Is it a problem to not expand dairy – both production and processing – in the Dakotas? Or more specifically, is it a problem to not expand by 3 million pounds or more per day? The region has highly productive agricultural land and existing infrastructure to support other enterprises like beef, hogs, or cash grain production. At prevailing prices, those opportunities may not be as lucrative as dairy, but they offer viable alternatives.

If the goal is to attract processing capacity, letting the market work means lower premiums. Eventually. Premiums need to drop enough to make processing plants profitable, which Part II analysis indicates is near $1 per hundredweight. Naturally, few dairy producers want to take substantial pay cuts like that. But when looking at the data, producers may have room to give some. Recent income over feed calculations indicate that South Dakota dairy producers have the highest margins in the nation – roughly $2 per hundredweight over the national average. If they understand and appreciate the risk/reward equation, they may be willing to trade lower pay today for growth potential tomorrow. In comparison, states like Wisconsin, Minnesota, and Iowa have lower margins by dimes and quarters, yet continue to see milk production growth around 4% – an indicator of positive profitability.

If current dairy producers are not willing to see premiums erode, dairy producers new to the Dakotas may have to do the job. State and private economic development efforts to recruit new dairy producers typically target regions with limited potential for farm expansion due to legal restrictions, environmental issues, or poor financial returns. In the past, dairy producers from California or the Netherlands relocated to the Dakotas in

search of the advertised greener pastures. If milk premiums in the Dakotas trend slightly lower, producers may still find the region attractive. But aggressive recruitment will be necessary to successfully draw cows and reduce milk premiums enough that new processing capacity is profitable.

Why the Dakotas

Regardless of the who, does investing in the Dakotas makes sense? Several characteristics seem to support dairy plant investment in the region. And, some of these may have helped win Bel Brands almost two-years ago.

Value Added Products

The plants that have survived and thrived are making products that command premiums in the market. Value added products bring more revenue in and allow a plant to pay the high Dakota milk premiums. Bel Brands produces premium retail cheese in South Dakota – mini Babybel portions – small, ¾ oz. cheese wheels in a variety of flavors for snacking. Labor and packaging drive the majority of cost of goods. Elsewhere in the US, some producer-owned operations have also attempted to move up the value chain. In Idaho, High Desert Milk is making low thermophilic milk powder while Idaho Milk Products is producing Grade A milk protein concentrate powders. Value added also includes byproduct revenue streams. Income from specialty whey product sales adds real dollars to a new cheese plant's bottom line. Expanding into print butter adds revenue for a powder drying operation.

The fluid market as a category is also changing. It's not just about jug capacity anymore. Value-added beverages like high protein milks, drinkable yogurts, and other nutritional beverages are encroaching on fluid milk's market share. Filtered milks are packaged in new and innovative ways to appeal to consumers. This new investment and competition might fit well in the Dakotas.

Small to Mid-Size

This fits the Dakotas for two reasons. First, successful new plants often grow in phases, incrementally adding capacity or new products. Construction and operations crews can focus on completing one phase at a time. Phase one makes products to sell, generating revenue to fund the next phase. This slower growth trajectory aligns with farm milk supply growth, so processing demand stays in balance with milk supply.

Second, the Dakotas only host 1.3% of US milk production, just over 7.3 million pounds per day on average. Looking at the I-29 corridor and neighboring states, milk supply is at about 15 million pounds per

day. Adding a small to midsize plant the size of Bel Brands — one to two million pounds per day — would only have a moderate demand-side impact on the local milk market. Either premiums increase to allocate milk supply to its best return, or milk production grows by double digits to fill a new five million pound per day dairy plant. Building a larger plant (3 million pounds per day or more) is betting on double digit growth for multiple years in a row. For companies and lenders who don't understand the pent up capacity for milk growth, this bet sounds like rolling the dice in Vegas.

Low-Cost Capital

As noted in Part 2, powder/butter (Class IV) plants have significantly lower capital requirements than cheese/whey (Class III) plants. Filtration, separation, and drying equipment simply costs less. In the choice of value added products, specialty milk powders (i.e. milk protein concentrates or isolates, micellar casein, whey protein concentrates, lactose) use this technology. High value end markets like infant, geriatric, or sports nutrition are prime customers.

Note that the most recent producer-owned investment in the US is in cheese, not powders. The DFA/Arla plant in Upstate New York ostensibly requires less capital by being small in scale. With only 30 employees and $58 million invested, estimates say milk processing capacity is at roughly half a million pounds per day.

Non-FMMO Pricing

As discussed in Part III, the ability to opt out of the Federal Orders is an advantage for the Dakotas. Processors have flexibility in establishing their pay prices for milk. They can pay a standard FMMO blend price plus premium, a cheese yield formula, or their own unique formula to compete for milk supplies.

"MORE MONEY, TARGETED INCENTIVES, BUSINESS INCUBATORS AND OTHER DEVELOPMENT PROGRAMS COULD INCREASE THE ODDS OF BUILDING NEW DAIRY PROCESSING OPERATIONS HERE."

The advantage is particularly important if the new product is a Class II product like yogurt, ice cream, or cottage cheese. With today's FMMO price formulas, manufacturers of Class II products find it difficult to hedge milk price risk. In the Dakotas, they could pay a cheese or "Class III" price and use readily available and well established hedging tools to set their input price. Chobani presumably benefits from this pricing at its new yogurt plant in Idaho, a similarly unregulated market.

Domestic Consumers

Given the distance from ports, the Dakotas are not an easy place to profitably produce for export. It simply costs too much to move product to export terminals on the coasts. A new plant in the Dakotas will be

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best suited for serving domestic consumers, either retail or as an ingredient for further processing. Infant, geriatric, or sports nutrition ingredient use is growing, and many potential customers are in the Midwest.

Marketing Expertise

The Bel Brands business already had go-to-market strategy and experience. Producer-owned plants often gather this expertise by partnering with existing marketers. For example: Cayuga with Ingredia Group and Green Meadows with Masters Gallery. These arrangements provide benefits at start up that include customer connections, product mix recommendations, construction advice, and a confirmed sale to satisfy a lender's requirements.

Government Support

To assist business development, government entities offer tax breaks and other incentives. Winning localities are often throwing in millions of dollars, either directly or in kind, to lure new investment. Of note, Green Meadows accepted no government support during construction. But, within a year of opening, the plant was struggling and eventually sold.

Say Yes to the Dakotas

The Dakotas offer many advantages for dairy processing plant investment. The region is home to a growing high-butterfat milk supply with dairy producers willing to grow further. It has existing dairy infrastructure to provide a network of support and potential buyers of surplus milk. Labor and utility costs are favorable. Laws and regulations are business friendly. Local educational institutions produce top dairy talent to staff a new plant and provide local technical assistance. State and local governments have demonstrated a willingness to provide economic incentives.

With some of the highest milk premiums in the nation, new commodity plants in the Dakotas are $10 to $15 million per year behind other regions. Investment is happening elsewhere.

There are ways to make things work, though. Producer-owned operations are succeeding in some areas of the country and, with proper assistance or incentives, could fit the Dakotas. More money, targeted incentives, business incubators, and other development programs could increase the odds of building new dairy processing operations here. It could also preserve returns for dairy producers while expanding the milk supply and local economy. Also, rethinking recruitment strategy to focus on small to mid-sized value added plants fits the Dakotas strengths. More investors are out there. ■

1/30/2017 SB 2330 Testimony #2 pg 1

COMMISSIONER
DOUG GOEHRING

ndda@nd.gov
www.agdepartment.com

NORTH DAKOTA
DEPARTMENT OF AGRICULTURE
STATE CAPITOL
600 E BOULEVARD AVE DEPT 602
BISMARCK ND 58505-0020

Testimony of Shaun Quissell
Livestock Development Director
SB Bill 2230
Senate Finance and Taxation Committee
Lewis and Clark Room

Chairman Cook and members of the Senate Finance and Taxation Committee, I am Shaun Quissell, division director of livestock development for the North Dakota Department of Agriculture (NDDA) here on behalf of Commissioner Doug Goehring. I am here today in support of SB 2330, which is relating to sale and uses tax exemption for Licensed Dairy farms.

The NDDA works to enhance all forms of agriculture. Our job is to assist both new and existing producers in their aspirations to enhance and expand their operations. Currently, North Dakota has 83 licensed dairy farms. During the 2015 session our state had 91 licensed dairies and if you go back just ten years we had 295 farms. North Dakota is sixth in the nation in the value of its crops but only 34th in total value of livestock commodities. Expanding any form of livestock production in the state especially dairy, will add value to our crops as well as our rural economies. A livestock operation adds value to crop farming operations by giving producers millions of dollars in direct marketing opportunities and hundreds of thousands of dollars in saved inputs. Livestock are able to utilize crop residues and ag processing by-products such as distiller's grains from ethanol and soybean meal from crushing plants. They convert these feeds

into high-quality proteins for human consumption while producing valuable, nutrient-dense manure to fertilize neighboring crops.

Year after year, agriculture remains on top as the number one industry in North Dakota. Our livestock industry alone provides several billion dollars in economic activity, tens of thousands of jobs and hundreds of millions of dollars in both property and income taxes.

Chairman Cook and committee members, I thank you for your consideration of SB 2330 . I would be happy to answer any questions you may have.

2/2/17 SB 2330 #1 pg1

COMMISSIONER
DOUG GOEHRING

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NORTH DAKOTA
DEPARTMENT OF AGRICULTURE
STATE CAPITOL
600 E BOULEVARD AVE DEPT 602
BISMARCK ND 58505-0020

- North Dakota
  - Milk marketing board sets minimum dairy price received by state dairy producers
    - December 2016 minimum class one price- 19.22/ cwt
      - Class one is considered milk used for bottling

- South Dakota
  - Dairy products marketing commission repealed in 1977
  - North east portion of state falls under Federal Milk Marketing Order No 30
    - December 2016 class one price 18.68/cwt
  - South east portion falls under Federal Milk Marketing Order No 32.
    - December 2016 class one price 19.08/cwt

- Minnesota-
  - No milk marketing board
  - State falls under Federal Milk Marketing Order No 32
    - December 2016 class one 18.68/ Cwt
    - Dept. of Agriculture handles milk price discrimination

- Wisconsin-
  - State has milk marketing board but does not set minimum price for dairy producers
  - State falls under Federal Milk Marketing Order 32
    - December 2016 class one price 18.68/ cwt

- Montana
  - Bureau of Milk Control sets minimum price paid to producers
    - December2016 class one price 19.43/ cwt

- Iowa
  - No milk marketing board
  - Under Federal Milk Marketing Order No 32
    - December 2016 class one price 19.08/ cwt

2/2/17 SB 2330 #1 pg 2

USDA United States Department of Agriculture

UPPER MIDWEST MARKETING AREA
Federal Order No. 30

Agricultural Marketing Service
Dairy Programs

Home Page:
www.fmma30.com

2150 Western Court, Suite 100
P.O. Box 4469
Lisle, IL 60532
Telephone: (630) 810-9999
Fax: (630) 810-1788

1600 West 82nd Street, Suite 200
Minneapolis, MN 55431-1420
Telephone: (952) 831-5292
Fax: (952) 831-8249

4600 American Parkway, Suite 101
Madison, WI 53718
Telephone: (608) 242-1822
Fax: (608) 242-1846

ANNOUNCEMENT OF CLASS PRICES AND RELATED DATA FOR DECEMBER 2016

	Market Class I Differential Rate	Class I Prices 1/ Skim Milk (Per cwt.)	Butterfat (Per Pound)	3.5% BF (Per cwt.)
Base Zone	**$ 1.80**	**$11.64**	**$ 2.1284**	**$18.68**
Other Zones	$ 1.75	$11.59	$ 2.1279	$18.63
	1.70	11.54	2.1274	18.58
	1.65	11.49	2.1269	18.53
	1.60	11.44	2.1264	18.48

Class II Prices	Nonfat Solids	(Per pound)	$ 0.8133
	Butterfat	(Per pound)	2.3424
	Skim Milk	(Per cwt.)	7.32
	3.50% BF	(Per cwt.)	15.26

Class III Prices	Protein	(Per pound)	$ 2.6922
	Other Solids	(Per pound)	0.2063
	Butterfat	(Per pound)	2.3354
	Skim Milk	(Per cwt.)	9.56
	3.50% BF	(Per cwt.)	17.40

Class IV Prices	Nonfat Solids	(Per pound)	$ 0.7822
	Butterfat	(Per pound)	2.3354
	Skim Milk	(Per cwt.)	7.04
	3.50% BF	(Per cwt.)	14.97

Somatic Cell Adjustment Rate	(Per cwt. per 1,000 SCC)	$ 0.00090

Factors Used in Prices for December 2016

Advanced Class III Skim Milk Price	(Per cwt.)	$ 9.84
Advanced Class IV Skim Milk Price	(Per cwt.)	6.62
Class I Skim Milk Price Mover	(Per cwt.)	$ 9.84
Advanced Butterfat Price	(Per pound)	2.1104

			2-Week Average	Monthly Average
AMS Survey Prices	Butter	(Per pound)	$ 1.9142	$ 2.1000
	Cheese	(Per pound)	1.7706	1.7990
	Dry Whey	(Per pound)	0.3706	0.3994
	Nonfat Dry Milk	(Per pound)	0.9105	0.9579
Component Prices	Butterfat	(Per pound)	$ 2.1104	$ 2.3354
	Protein	(Per pound)	2.8376	2.6922
	Other Solids	(Per pound)	0.1766	0.2063
	Nonfat Solids	(Per pound)	0.7353	0.7822

-- OVER --

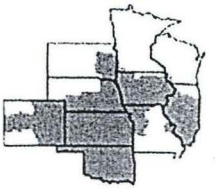
2/2/17 SB 2330 #1 pg 3

USDA
United States Department of Agriculture
Agricultural Marketing Service
Dairy Program

MARKET ADMINISTRATOR
Central Federal Order No. 32
10801 Renner Boulevard
Lenexa, Kansas 66219

phone (913) 495-9300 **fax** (913) 888-9207
e-mail market.administrator@fmmacentral.com
home page www.fmmacentral.com

MAILING ADDRESS:
P.O. Box 14650
Shawnee Mission, KS 66285-4650



Central Federal Milk Order #32
Announcement Of "Advanced" Class Prices For December 2016
Released On November 23, 2016

Class I Price @ 3.5% Butterfat		
$2.00 Location Adjustment @ Jackson County (MO)	$18.88	/cwt
Fluid Milk Promotion Order Processor Assessment [1]	+0.20	
	$19.08	
Class I Butterfat Price		
$2.00 Location Adjustment @ Jackson County (MO)	$2.1304	/lb
Class I Skim Price		
$2.00 Location Adjustment @ Jackson County (MO)	$11.84	/cwt
Class II Skim Price	$7.32	/cwt
Class II Nonfat Solids Price	$0.8133	/Lb

[1] **Processor Assessment**: The 20-cent per hundredweight processor assessment is an obligation under the Fluid Milk Promotion Order (7CFR§1160.101 et seq.) imposed on any person who processes and markets commercially more than 3 million pounds of packaged fluid milk products on a monthly basis. Deliveries to consumer residences are excluded. Effective February 29, 2016, processors of certified "organic" and "100 percent organic" fluid milk products may apply for an organic assessment exemption for those products.

Announcement Of Class Prices For December 2016
Released On January 5, 2017

Class II Price @ 3.5% BF	**$15.26**	/cwt
Class II Butterfat	**$2.3424**	/lb
Class III Price @ 3.5% BF	**$17.40**	/cwt
Class III Skim Milk	**$9.56**	/cwt
Class IV Price @ 3.5% BF	**$14.97**	/cwt
Class IV Skim Milk	**$7.04**	/cwt
Butterfat Price	**$2.3354**	/lb
Nonfat Solids Price	**$0.7822**	/lb
Protein Price	**$2.6922**	/lb
Other Solids Price	**$0.2063**	/lb
Somatic Cell Adjustment Rate Per 1,000 Somatic Cell Count	**$0.00090**	/cwt

Released: January 5, 2017 by Todd D. Wilson, Market Administrator

2/2/17 SB 2330 #1 pg 4

BEFORE THE BOARD OF MILK CONTROL OF THE STATE OF MONTANA

ANNOUNCEMENT OF CLASS I, II & III PRODUCER PRICES

EFFECTIVE: December 01, 2016

PUBLISHED: November 23, 2016

CLASS I PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	**$ 19.43**		
VALUE OF CLASS I BUTTERFAT AT 3.5 LBS ($)	$ 7.48	**CLASS I BUTTERFAT PRICE PER POUND ($/LB)**	**$ 2.1359**
VALUE OF CLASS I SKIM MILK AT 96.5 LBS ($)	$ 11.95	**CLASS I SKIM PRICE PER POUND ($/LB)**	**$ 0.1239**

Under ARM 32.24.301(5), the minimum Class I price to pay milk producers per hundred pounds of milk (cwt) testing 3.5% butterfat f.o.b. milk distributor's plant is $19.43.

The value of one pound of butterfat utilized will be $2.1359/lb. When milk does not test 3.5% butterfat, compute the applicable price by applying a differential of 21.359 cents for each one-tenth of one percent butterfat above or below 3.5%.

ARM 32.24.301(5): Federal Order Base Class I Price ($/cwt)	$ 16.88	ARM 32.24.301(5): Federal Order Advanced Butterfat Pricing Factor ($/lb)	$ 2.1104
ARM 32.24.301(5): Differential ($/cwt)	$ 2.55	Differential: $2.55/cwt / 100 lbs/cwt ($/lb)	$ 0.0255
CLASS I PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	$ 19.43	CLASS I BUTTERFAT PRICE PER POUND ($/LB)	$ 2.1359

CLASS II PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	**$ 14.50**		
VALUE OF CLASS II BUTTERFAT AT 3.5 LBS ($)	$ 7.53	**CLASS II BUTTERFAT PRICE PER POUND ($/LB)**	**$ 2.150**
VALUE OF CLASS II SKIM MILK AT 96.5 LBS ($)	$ 6.98	**CLASS II SKIM PRICE PER POUND ($/LB)**	**$ 0.0723**

ARM 32.24.301(6): Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb)	$ 0.9263		ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$ 2.0300	
ARM 32.24.301(6): Freight Adjustment ($/lb)	$ 0.0125		ARM 32.24.301(6): less a differential of $0.0895	$ (0.0895)	
Subtotal ($/lb)	$ 0.9388		Subtotal ($/lb)	$ 1.9405	
ARM 32.24.301(6): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)		$ 7.70	ARM 32.24.301(6): multiplied by 0.111	$ 0.2154	
			ARM 32.24.301(6): rounded to the nearest $0.005 ($/0.1% butterfat content)	$ 0.215	
ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$ 2.0300		multiplied by 10 ($/% butterfat content = $/lb butterfat) CLASS II BUTTERFAT PRICE PER POUND ($/LB)	$ 2.150	
ARM 32.24.301(6): less a differential of $0.0895	$ (0.0895)				
Subtotal ($/lb)	$ 1.9405				
ARM 32.24.301(6): multiplied by 4.2 (lbs butter per cwt milk)		$ 8.15	Hundredweight price of milk testing 3.5% butterfat ($/cwt)	$ 14.50	
			Less: Value of 3.5 pounds of butterfat ($)	$ (7.53)	
Nonfat Dry Solids Price Component + Butter Price Component ($/cwt milk)		$ 15.85	VALUE OF CLASS II SKIM PRICE AT 96.5 LBS ($)	$ 6.98	
ARM 32.24.301(6): Less Make Allowance of 8.5% ($/cwt)		$ (1.35)	CLASS II SKIM PRICE PER POUND ($/lb)	$ 0.0723	
CLASS II PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)		$ 14.50			

CLASS III PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	**$ 12.28**		
VALUE OF CLASS III BUTTERFAT AT 3.5 LBS ($)	$ 6.11	**CLASS III BUTTERFAT PRICE PER POUND ($/LB)**	**$ 1.7465**
VALUE OF CLASS III SKIM MILK AT 96.5 LBS ($)	$ 6.17	**CLASS III SKIM PRICE PER POUND ($/LB)**	**$ 0.0639**

Class III BF Price/lb x 3.5 lbs butterfat per cwt milk: VALUE OF CLASS III BUTTERFAT AT 3.5 LBS	$ 6.11	ARM 32.24.301(7): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$ 2.0300
Class III Skim per lb x 96.5 lbs per cwt milk: VALUE OF CLASS III SKIM MILK AT 96.5 LBS ($)	$ 6.17	ARM 32.24.301(7): less a differential of $0.0895	$ (0.0895)
CLASS III PRICE PER CWT FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	$ 12.28	Subtotal ($/lb)	$ 1.9405
		ARM 32.24.301(7): Less 10%	$ (0.1941)
		Butter Price Component: CLASS III BUTTERFAT PRICE PER POUND ($/LB)	$ 1.7465
		Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb)	$ 0.9263
		ARM 32.24.301(7): Freight Adjustment ($/lb)	$ 0.0125
		Subtotal ($/lb)	$ 0.9388
		ARM 32.24.301(7): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)	$ 7.70
		ARM 32.24.301(7): less 17%	$ (1.31)
		Nonfat Dry Solids Price Component ($/cwt)	$ 6.39
		Nonfat Dry Solids Price Component: CLASS III SKIM PRICE PER POUND ($/LB)	$ 0.0639

December 2016 Montana Price Announcement Summary:

	Price for Milk Testing 3.5% Butterfat ($/cwt)	Butterfat Price ($/lb)
CLASS I	$19.43	$2.1359
CLASS II	$14.50	$2.150
CLASS III	$12.28	$1.7465

BY ORDER OF THE MONTANA MILK CONTROL BUREAU
Chad Lee, Bureau Chief
444-2875

2/6/2017 SB 2330 Attachment #1 pg1

Prepared by the
Office of State Tax Commissioner
January 31, 2017

PROPOSED AMENDMENTS TO SENATE BILL NO. 2330

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to amend and reenact subsection 4 to section 57-39.2-04.4 of the North Dakota Century Code, relating to the definition of agricultural commodity processing facilities; and to provide an effective date.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. AMENDMENT. Subsection 4 to section 57-39.2-04.4 of the North Dakota Century Code is amended and reenacted as follows:

4. For purposes of this section, the following definitions apply:
   a. "Agricultural commodity processing facility" means buildings, structures, fixtures, and improvements used or operated primarily for the processing or production of marketable products from agricultural commodities. The term includes a facility that is used directly and exclusively for the milking operation of a dairy farm. The term does not include a facility that provides only storage, cleaning, drying, or transportation of agricultural commodities.
   b. "Facility" means each part of the facility which is used in a process primarily for the processing of agricultural commodities, including receiving or storing agricultural commodities; transporting the agricultural commodities or product before, during, or after the processing; or packaging or otherwise preparing the product for sale or shipment. For a dairy farm milking operation, facility means the buildings and structures where milk is extracted, collected, and stored prior to removal for sale or processing.
   c. "Tangible personal property" includes machinery, equipment, and structural materials, used directly and exclusively in, or incorporated into the structure of, a facility for the collection, handling, storage, heating, cooling, and waste handling and disposal related to a milking operation of a dairy farm, including replacement machinery, equipment, or construction materials, but does not include tools or machinery used to construct an agricultural commodity processing facility, and does not include machinery or equipment exempted under section 57-39.2-04.3.

SECTION 2. AMENDMENT. This Act is effective for taxable sales and purchases made after June 30, 2017."

Renumber accordingly

2/6/2017 SB 2330 Attachment #2 pg 1

DRAFT PROPOSED AMENDMENTS TO SENATE BILL NO. 2330
(Prepared by Legislative Intern Brady Pelton at the request of the Senator Laffen)

Page 1, line 1, after "A BILL" replace the remainder of the bill with "to provide for a study by the agriculture commissioner and to provide for a report to the legislative management.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. STUDY – AGRICULTURE COMMISSIONER – REPORT TO LEGISLATIVE MANAGEMENT.

During the 2017-18 interim, the agriculture commissioner shall study state dairy operations, with the intent of identifying ways by which to increase the number of dairy operations in the state. The study must include a review of current dairy industry practices, general dairy industry best practices, and tax policy related to dairy operations. The study must also comparatively analyze the differences between North Dakota and South Dakota dairy operations, including analysis of land type, land use, geography, climate, dairy commodity pricing mechanisms, dairy farm property tax assessments, and the sales and use taxes related to milking equipment and materials purchased for use on a licensed dairy farm. The agriculture commissioner shall provide a report with recommendations to the legislative management regarding the results of his study by June 30, 2018.

Renumber accordingly

2-7-17 SB 2330 Attachment #3 Pg 1

STATE OF NORTH DAKOTA
OFFICE OF STATE TAX COMMISSIONER
RYAN RAUSCHENBERGER, COMMISSIONER

Memorandum

TO: Senator Dwight Cook, Chairman
Senate Finance and Taxation Committee

FROM: Kathryn Strombeck
Research Analyst, Office of Tax Commissioner

RE: Estimated fiscal impact of Amendments to SB 2330 (17.0966.01001)

DATE: February 7, 2017

The proposed "hog-housed" amendment to SB 2330 that modifies the definition of "farm machinery" for purposes of the farm machinery gross receipts tax will subject equipment and materials used in the operation of a dairy farm to a **3% gross receipts tax**.

The same assumptions used in fiscal note on the original version of the bill applies to this amendment as well: potentially two new large-scale operations, and smaller scale upgrades to existing dairy operations are likely to occur within the 2017-19 biennium. This amendment would reduce the tax rate from 5% to 3% for qualifying dairy farm purchases, resulting in an estimated reduction in total revenues of approximately **$100,000 for the 2017-19 biennium**. This decrease would impact the state general fund (-$91,300) and the state aid distribution fund (-$8,700).

If this amendment is adopted by the Senate, an official fiscal note will likely be requested by Legislative Council.

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2/6/17 SB 2330 Attachment #4 pg 1

17.0966.01001
Title.02000

Adopted by the Finance and Taxation Committee

February 6, 2017

PROPOSED AMENDMENTS TO SENATE BILL NO. 2330

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to amend and reenact subsection 2 of section 57-39.5-01 of the North Dakota Century Code, relating to the definition of farm machinery; to provide for a study by the agriculture commissioner; to provide for a report to the legislative management; and to provide an effective date.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. AMENDMENT. Subsection 2 of section 57-39.5-01 of the North Dakota Century Code is amended and reenacted as follows:

2. "Farm machinery" means all vehicular implements and attachment units, designed and sold for direct use in planting, cultivating, or harvesting farm products or used in connection with the production of agricultural produce or products, livestock, or poultry on farms, which are operated, drawn, or propelled by motor or animal power. "Farm machinery" also includes machinery, equipment, and structural materials used directly and exclusively in, or incorporated into the structure of, a facility for the collection, handling, storage, heating, and cooling related to a milking operation of a dairy farm. "Farm machinery" does not include vehicular implements operated wholly by hand or a motor vehicle required to be registered under chapter 57-40.3. "Farm machinery" does not include machinery that may be used for other than agricultural purposes, including tires, farm machinery repair parts, tools, shop equipment, grain bins, feed bunks, fencing materials, and other farm supplies and equipment.

SECTION 2. STUDY - AGRICULTURE COMMISSIONER - REPORT TO LEGISLATIVE MANAGEMENT. During the 2017-18 interim, the agriculture commissioner shall study state dairy operations, with the intent of identifying ways by which to increase the number of dairy operations in the state. The study must include a review of current dairy industry practices, general dairy industry best practices, and tax policy related to dairy operations. The study must also comparatively analyze the differences between North Dakota and South Dakota dairy operations, including analysis of land type, land use, geography, climate, dairy commodity pricing mechanisms, dairy farm property tax assessments, and the sales and use taxes related to milking equipment and materials purchased for use on a licensed dairy farm. The agriculture commissioner shall provide a report with recommendations to the legislative management regarding the results of the study by June 30, 2018.

SECTION 3. EFFECTIVE DATE. This Act is effective for taxable events occurring after June 30, 2017."

Renumber accordingly

COMMISSIONER
DOUG GOEHRING

NORTH DAKOTA
DEPARTMENT OF AGRICULTURE
STATE CAPITOL
600 E BOULEVARD AVE DEPT 602
BISMARCK ND 58505-0020

ndda@nd.gov
www.agdepartment.com

SB 2330
2-13-17
#1

Testimony of Shaun Quissell
Livestock Development Director
SB Bill 2330
Senate Appropriations Committee
Harvest Room
February 13, 2017

Chairman Holmberg and members of the Senate Appropriations Committee, I am Shaun Quissell, livestock development division director for the North Dakota Department of Agriculture (NDDA). I am here on behalf of Commissioner Doug Goehring. I am here today in support of SB 2330, which is relating to sale and uses tax exemption for Licensed Dairy farms.

The NDDA works to enhance all forms of agriculture. Our job is to assist both new and existing producers in their aspirations to enhance and expand their operations. Currently, North Dakota has 83 licensed dairy farms. During the 2015 session our state had 91 licensed dairies and if you go back just ten years we had 295 farms. North Dakota is sixth in the nation in the value of its crops but only 34th in total value of livestock commodities. Expanding any form of livestock production in the state especially dairy, will add value to our crops as well as our rural economies. A livestock operation adds value to crop farming operations by giving producers millions of dollars in direct marketing opportunities and hundreds of thousands of dollars in saved inputs. Livestock are able to utilize crop residues and ag processing by-products such as distiller's grains from ethanol and soybean meal from crushing plants. They convert these feeds

1

into high-quality proteins for human consumption while producing valuable, nutrient-dense manure to fertilize neighboring crops.

Year after year, agriculture remains on top as the number one industry in North Dakota. Our livestock industry alone provides several billion dollars in economic activity, tens of thousands of jobs and hundreds of millions of dollars in both property and income taxes.

Chairman Holmberg and committee members, I thank you for your consideration of SB 2330. I would be happy to answer any questions you may have.

#1
SB 2330
3-13-17

Testimony on SB 2330
Senator Terry Wanzek

Good Morning Chairman Headland and members of the House Finance and Tax Committee. My name is Terry Wanzek, State Senator representing district 29, from Jamestown.

SB 2330 is a fairly simple request in logistical terms, but maybe a bit more complex politically. I know that it appears that tax credits are not in vogue this session. I know it is probably a difficult request to make at this time. I'll do my best to explain why I am asking for some yes votes on this bill.

First, let's talk about ND Dairy industry ~~a bit~~. It has a long historical tradition in ND's rural agriculture community. I was told at one time we led the nation in the production of cream. At one time we had nearly 100,000 dairy cows and 1000 dairy farms in our state. As late as 15 years ago we still had 350 dairy farms and approximately 45000 dairy cows. Today we have only 86 83 dairy farms and 16000 cows. Since our last legislative session we lost 5 dairy farms, going down from 91 to 86. Contrast this to South Dakota, which is growing in numbers up to 255 farms and 94000 cows.

Dairy operations are said to be the most economically vibrant enterprises in agriculture. Our sister state's SD dairy studies show each dairy cow generates $14,042 dollars of economic impact to the local community each year. SD Dairy has a statewide economic impact of $1.28 billion annually. SD also has 10 processing plants while we have 2. And I understand we import milk to keep them operating.

SB 2330 is not going to be a cure all ~~to~~ for our downward trend and dwindling dairy farms in the ND dairy industry. It will, though, provide some help to anyone who is willing to invest in ND and build a dairy farm. Any little bit will help. It will be a way for our state to say we welcome your investment into dairy farming. It can be a small effort from state government to help save our long rich history of dairy farming. This industry has been in serious decline.

It is the intent that only the hard costs of developing or expanding a dairy farm, building and construction materials and equipment unique to dairy, be exempt from sales tax. Not the day to day supplies etc. Not equipment, like a tractor which can be used in other farming situations, that has common purposes. I have not seen the fiscal note, but I believe it should not be very high as we have been loosing dairy farms not growing them. I feel we have little to lose by making an investment into this industry. If the tax exemption would be a tipping point to building or investing in a dairy farm, it will be a good investment from the state when we consider all the additional economic activity that will be created. Please give this idea and SB 2330 serious consideration. Thank you Mr. Chairman and House Finance and Tax Committee.

#2
SB 2330
3-13-17

A Vision for Dairy in the Dakotas – Executive Summary

A joint study between the North Dakota Dairy Coalition and the South Dakota Department of Agriculture has been completed by Blimling and Associates, Inc. of Madison, WI. The study was commissioned to:

I. Determine recent trends in the U.S. dairy industry.
II. Compare milk processing plant economics between regions.
III. Evaluate the strengths and weaknesses of the Dakotas.
IV. Provide strategies to move forward.

Milk supply growth and processing expansion around the U.S. is discussed in Section 1 of the study. A growth of 8% total milk output was realized in four regions in the U.S. between 2010 and 2015. An increase in milk supply drove the dairy processing expansions in the Mideast[1] and Wisconsin[2] regions. In the Southwest/Intermountain[3] region processing investment led milk supply growth. During that same time period, North Dakota had a decrease of 14% milk production and a loss of 5,000 cows, resulting in a delay of critical processing investment.

Section II of the study discusses the differences in financial returns between hypothetical processing plants in the Dakotas, Michigan and Colorado. The study focused on a 3 million pound-per-day milk plant, which would need milk from 40,000 to 45,000 cows, with analysis considering cheese/whey, butter/powder, and retail/branded products. The study estimates the return for a plant in the Dakotas would fall $10 million to $15 million short on an annual basis compared to similar plants in other regions. This is due to higher milk premium prices paid to Dakota region dairy farmers, which would increase the plant's input costs. Freight and distance to consumer population centers also increases the plant's product distribution costs.

Section III explores factors processors consider when investing in facilities. The study lists numerous advantages that make North Dakota appealing to processors:

- Provides a flexible milk pricing structure.
- Farm milk production varies less in the Dakotas (4% vs 12%) than in other areas, resulting in a more consistent milk supply.
- The Dakotas have consistently higher butterfat content due to the regions fewer days of high heat and humidity.

- The region presents a very positive business environment via multiple incentives provided at both state and local levels. These include those provided by the Bank of North Dakota, the U.S.'s only state-owned bank.
- Open spaces, reliable feed and water supplies to continue growing cow numbers and the region's milk supply.

The study also listed some barriers to the expansion of processing in the Dakotas:

- The Dakotas' milk prices, specifically the premiums, are among the highest in the country. This is appealing to dairy producers, but presents a challenge for processors due to the increased upfront cost.
- Fluctuation in consumer demand presents a management challenge in the Dakotas due to a lack of balancing capacity.
- Current land ownership laws are inhibitive to dairy farm growth.
- If North Dakota's dairy industry is allowed to continue its decline, expanding processing capacity will become increasingly challenging due to milk production and infrastructure loss.

Finally, Section IV states options to successfully attract new processing investments in North Dakota:

- Pursue smaller-scale, value-added processors such as specialty cheeses, yogurts, butter, or beverages. When integrated with local dairies, these processors can capitalize on the value and marketability of locally produced foods.
- Seek dairy producer-driven investment in processing operations, as seen in many other regions.
- Expand upon the government's incentives and assistance options.
- Discuss expansion and value-added product diversification opportunities with the state's current processors.

In conclusion, the study shows that North Dakota has the ability to sustain and expand the state's dairy industry through participation with local communities, state government and local investors to attract small to medium processing facilities. The new milk marketing opportunity will give North Dakota's current dairies the ability to grow, while attracting new dairy producers to the state.

For more information on the "A Vision for Dairy in the Dakotas" study, contact North Dakota Dairy Coalition spokesman Jerry Messer at jerm@ndsupernet.com or 701-290-1628.

1 – The Mideast region consists of Michigan and Indiana
2 – The Wisconsin region consists of the state of Wisconsin
3- The Southwest/Intermountain region consists of Colorado, Texas, and Kansas
4 – The Dakotas consists of North and South Dakotas

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Testimony of Shaun Quissell
Livestock Development Director
SB Bill 2330
House Finance and Taxation Committee
Fort Totten Room
March 13, 2017

Chairman Headland and members of the House Finance and Taxation Committee, I am Shaun Quissell, division director of livestock development for the North Dakota Department of Agriculture (NDDA) here on behalf of Commissioner Doug Goehring. I am here today in support of SB 2330, which is relating to sale and uses tax exemption for Licensed Dairy farms.

The NDDA works to enhance all forms of agriculture. Our job is to assist both new and existing producers in their aspirations to enhance and expand their operations. Currently, North Dakota has 83 licensed dairy farms. During the 2015 session our state had 91 licensed dairies and if you go back just ten years we had 295 farms. North Dakota is sixth in the nation in the value of its crops but only 34th in total value of livestock commodities. Expanding any form of livestock production in the state especially dairy, will add value to our crops as well as our rural economies. A livestock operation adds value to crop farming operations by giving producers millions of dollars in direct marketing opportunities and hundreds of thousands of dollars in saved inputs. Livestock are able to utilize crop residues and ag processing by-products such as distiller's grains from ethanol and soybean meal from crushing plants. They convert these feeds

into high-quality proteins for human consumption while producing valuable, nutrient-dense manure to fertilize neighboring crops.

Year after year, agriculture remains on top as the number one industry in North Dakota. Our livestock industry alone provides several billion dollars in economic activity, tens of thousands of jobs and hundreds of millions of dollars in both property and income taxes.

Chairman Headland and committee members, I thank you for your consideration of SB 2330 . I would be happy to answer any questions you may have.