Table 1 : GIS DATASET LAYERS AND MAPS

ACTIVITY	GIS Maps	Map Providers
Physical Ag Landscape		
	Land Cover & Major Group	PFRA
	Community Pasture Lands	PFRA
	Land Practices Group	PFRA
	Land Suitability for Small Grains	Environment Canada
Water Resources	Aquifers	LMS
	Surface Irrigation	Sask Water
	Water Pipeline Distribution	Sask Water
Wildlife And Crown Land		
	Wildlife	SERM
	Crown Land	SAF
	Parks	ISC
Soil	Soil Suitability	University Sask
	Erosion –Water & Wind	
	Salinity	
Climate	Annual Precipitation	Environment Canada
	Effective Growing Degree Days	
	Precipitation – Evapotranspiration	
	Wind Direction and Speed	
	Climate Rating	
Ag Services	Fertilizer	LMS
	Veterinary	
	AG Implement	
	Feed Mills	
	HTE Elevators	
	AG Research Farms & Plants	
	Seed Pedigree Growers	
	Seed Cleaning & Distribution	
	Auction Marts	
	SPI Hog Assembly Yards	

ACTIVITY	GIS Maps	Map Providers
Infrastructure & Utilities		
	Road	LMS
	Provincial Road Budget 2000-2001	LMS
	Provincial Road Budget 1999-2000	LMS
	CAIP Road Investment 1996-2000	LMS
	Rail	LMS
	Competitive Rail Access	LMS
	Power Lines	ISC
	Telecommunications-Cell	LMS
Ag Production		
	Crop Insurance Acres 2000	SK Crop Ins
	2000 Cereals	SK Crop Ins
	2000 Oilseeds	SK Crop Ins
	2000 Pulses	SK Crop Ins
	1996 RM Cereals, Oilseed, Pulse, Forage	Stats Canada
	Crop District Change Acres 1996-2000	
	Wheat	Sask Ag Food
	Durum	
	Barley	
	Oats	
	Canola	
	Flax	
	Peas	
	Lentils	
	Mustard	
	Chickpeas	
Livestock	ILO – All Operations	Sask Ag Food
	Hogs 1996 Census with New ILO	
	Hog Growth by Crop District 1991-1999	
	Cattle 1996 Census with Feedlots	
	Cattle Growth by Crop District 1991-1999	
	Beef Feedlots & ILO	
	Bison	SK Bison Assoc
	Elk & Fallow Deer1996 Census	
	Poultry 1996 Census	
	Horse 1996 Census	

ACTIVITY	GIS Maps	Map Providers
Ag Processors	Cereal Wheat & Durum	LMS
	Cereal Organics	LMS
	Cereal Oat	LMS
	Canola	LMS
	Flax	LMS
	Pulse	LMS
	Federal Inspected Hog Plants	LMS
	Federal Inspected Beef Plants	LMS
	Ethanol	LMS
	Alfalfa Plants	LMS
	Timothy Hay Plants	LMS
	Bio-Industrial	LMS
	Nutraceutical	LMS
Food Processors	Saskatchewan All	LMS
	Saskatchewan Meat	
	Saskatchewan Fruit Vegetable	
	Saskatchewan Dairy	
	Saskatchewan Flour	
	Saskatchewan Bakery	
	Saskatchewan Other	
Urban Structure	Population	Saskatchewan Municipal Affairs
	Stabler-Olfert	Stabler -Olfert
	Hutterities	Saskatchewan Atlas
	Treaty Land Entitlement	FSIN
	Ethnic Community Types	Saskatchewan Atlas
Ag Investment	Sector	LMS
	Location	LMS
Saskatchewan Value Chains		
	Sector - Cereal – Wheat	LMS
	Sector - Cereal - Durum	
	Sector - Cereal - Oats	
	Sector - Oilseed - Canola	
	Sector - Oilseed - Flax	
	Sector -Livestock - Beef	
	Sector -Livestock - Hog	

ACTIVITY	GIS Maps	Map Providers
Distance Density Maps Production to Processors		
	Wheat	LMS
	Canola	LMS
	Oats	LMS
	Hogs	PFRA
	Beef	PFRA
Saskatchewan Relation to Value Chain in Western Canadian		
Food Processing Sector		
	All	LMS
Cattle Value Chain Western Canada		LMS
Hog Value Chain Western Canada		LMS
Ethanol Value Chain		LMS
Agro Forestry Example GIS Site Assessment		LMS

How to Use This Tool

In order to facilitate the use of the GIS mapping information contained on the CD the following describes an application to illustrate how to use the .jpg maps and information.

In order to compare or combine map information, the user must print overlays on overhead transparencies and by combining different map themes together one can identify associations between attributes. Also, the user could print the different maps individually and compare the relative information and associations between maps.

Note that the information in the maps are at a macro scale or view of the province and is intended to assist in identifying comparative advantages between regions within the province in the context of opportunities for added value agriculture development.

At this stage, the maps are not intended to evaluate one new "site specific development location".

For example the maps regarding water, power and gas lines do not show the actual physical exact locations for surveying or construction purposes. (Please contact Sask Energy, Sask Water, Sask Power for exact location information).

Nor do the maps identify the markets that goods may be sold in or the cost to access and produce goods or services.

Site-specific locational analysis is required in any project to determine the exact location of new development opportunities. The maps and use of the information is to assist decision makers in determining the number of possible geographic areas for new agriculture development opportunities. Lastly, **financial, economic, legal, and regulatory information must be considered in any new**

development opportunity to determine the economic feasibility of any new initiative.

1. Example Application for Site Location Assessment Ethanol Plants

To compare geographic regions of the province for their relative ability to support ethanol plants one could use the following maps.

Assumptions:

Smaller Ethanol plant 12-20 million litres

Feedstock is Wheat, Oats, and Barley

Ethanol Market is Domestic Province

Output mash sold to feedlots

Require access to Primary highways, Gas, Power and Water

The user could compare alternative locations of towns by comparing the following maps printed as overlays or by comparing the maps together as printouts from the various maps sections.

Gas Lines (from Infrastructure Section)

Power Lines (from Infrastructure Section)

Water Lines (from Infrastructure Section)

Highway Road Network (from Infrastructure Section)

Feedlots (from Livestock Section)

Towns (from Urban Section)

Retail Gas Stations (from Value Section)

By combining or comparing maps they illustrate which towns offer the required services to potentially locate possible sites. However, if the ethanol markets are out of province or to the United States rail transportation is required. The rail network map may be used to show the type of rail accesses and service conditions of towns.

Furthermore, one would also compare the regions or districts where crop feedstock is best suited around each town using maps in the Agriculture Production Section. In the assessment of any new potential development opportunities, maps from the following sections could be used from the main categories and combined.

Water

Soil

Climate

Infrastructure - Utilities

Location of Processors

Urban Structure

Ag Production

The maps do not show the markets for Agricultural Food Processing and the costs to service their respective markets, as they were not intended in the context of this study.

The maps and the method provide a tool for community planners to assess the strengths and some of the barriers in developing value added agriculture strategies. The study also provides a macro view of the province and can be used as starting point for external investors who are looking for a Saskatchewan location relative to other North American jurisdictions.

The intention of the maps is to provide a starting point to compare the relative attributes required in a site locational assessment of identifying the range of opportunities for new agricultural developments.

The following section outlines each map layer developed by activity, the source of information or developer of the base maps, the date and assumptions for data, the relevancy and application of the map in the context of the cluster assessment of towns and the contact name for further information of the map if required.

Assessment of Map Information Sets

Physical Ag Landscape

1. Land Cover

Assumptions: PFRA Study 2000

Data Sources: PFRA

Relevancy – Application:

Land cover illustrates current dominant land cover types across the Province. This map was provide from PFRA and was generated from a satellite "Landsat" view of Saskatchewan. The image is for Southern Saskatchewan and as expected cropland is the dominant land cover type. Grassland is the second most significant land cover type.

Assessment to Clusters

Towns located in major Cropland Areas:
Kindersley, Unity, Rosetown, Unity,
Assiniboia, Outlook, Meadow Lake, Tisdale, Melfort,
Nipawin, Humboldt, Wadena, Canora, Watrous, Davidson,
Moosomin, Esterhazy, Indian Head, Shellbrook

Towns located in major Grassland Areas:
Maple Creek, Shaunavon, Biggar, Spiritwood, Battleford

Towns in Wetlands: Big River

Data Issues

None

Contact and Date of Data

Dean Smith
PFRA
Regina, SK
306.780.5117

June 2000

2. Community Pasture Lands PFRA

Assumptions: PFRA 2000 community pasture lands
There are 54 cattle and two sheep pastures.
There is 775,000 acres of pasture land.

Data Sources: PFRA

Relevancy – Application:

Community pasturelands offer land for cattle grazing. Increasing the land available and monitoring the use of it will increase the number of cattle in Saskatchewan.

Community pastures may offer organic setting for cattle development as compared to intensive feedlot developments.

Towns located in close proximity to community land pasture area may offer future services for the users of community pastures.

Assessment to Clusters

The following towns are located in close proximity to large tracts of community pastures include:

Spiritwood
Watrous
Outlook
Davidson
Shaunavon

Data Issues

None

Contact and Date of Data

Dean Smith
PFRA
Regina, SK
306.780.5117

October 2001

3. Land Practice Groups

Assumptions: PFRA Land Practice Assessment 2000

Data Sources: PFRA

Relevancy – Application:

The PFRA conducted the Prairie Agriculture Landscape (PAL) study to help focus policy direction for the PFRA for sustainable agriculture growth.

The land practice classification developed by PFRA first grouped areas with similar agriculture practices and land uses together. Then soil and landscape types were grouped together. There were 15 land practice groups identified by the PFRA.

Land was grouped by two practices; cultivated and pasture. Cultivated land was sub grouped depending on different land practice conditions pertaining to summerfallow, crop inputs, crop diversity or types. Pastureland was classed by farm size and on the intensity of pastureland in the area.

Assessment to Clusters

The towns were grouped according to the dominant Land Practice Group. If the town was adjacent to several practice types it was allocated to all the appropriate groups:

Pasture	Cultivated High Crop Diversity Low Summerfallow	Cultivated High Summerfallow Pulse
Maple Creek	Tisdale	Rosetown
Spiritwood	Nipawin	
Shellbrook	Melfort	
	Wynyard	
	Foam Lake	
	Indian Head	
	Kamsack	

Cultivated High Summerfallow Low Crop Diversity	Cultivated Med Summerfallow Flax

Kindersley Shaunavon Assiniboia	Moosomin Esterhazy Melville Indian Head Watrous Canora

Cultivated Low Summerfallow Oilseeds	Cultivated High Summerfallow Oilseeds

Humboldt Wadena Battleford Unity Outlook Shellbrook	Unity Davidson Biggar

Towns situated in land practice areas of high diversity, oilseeds, have different opportunities and services for fertilizers-seed as compared to towns situated with pasture.

Thus the town's relative location to the Land Practicing Group will greatly influence both the direction of future development for both forward and backward services industries.

Data Issues

None

Contact and Date of Data

Dean Smith
PFRA
Regina, SK
306.780.5117

June 2000

4. Land Suitability for Spring Seeded Small Grains (Wheat, Oats, Barley)

Assumptions: Environment Canada

There seven class values with respect to suitability for small grain production. The class system is based upon climate, landscape and soil factors. Class 1-3 is considered suitable, 4 marginal and 5,6 and 7 non-suitable production areas.

Data Sources: Environment Canada

Relevancy – Application:

Land suitability was based upon the classification system developed by Environment Canada.

The northern grain belt area of southern Saskatchewan is classed at 2 and 3. The central area of the province is in classes 4 and 5. Class 3 and 4 are the largest land areas in the Province.
Marginal land, associated with poorer soil and climatic conditions, is classed as 6-or 7 and occurs in pockets across the Province.

Assessment to Clusters

Towns were identified by their relative location based upon the classes as follows:

Class 2 : Meadow Lake, Melfort, Tisdale, Wadena, Canora

Class 3: Big River, Spiritwood, Unity, Humboldt, Wynyard, Foam Lake, Melville, and Moosomin.

Class 4: Battleford, Kindersley, Rosetown, Davidson, Shaunavon, Assiniboia, Watrous

Class 5: Maple Creek, Kamsack

Class 6: Outlook

Data Issues

None

Contact and Date of Data

Dan McKenney
Environment Canada
705.759.5740 (Extension 2316) October 2001

Water Resources

5. Groundwater Aquifers

Assumptions: 1999 Data Set Provided in Saskatchewan Atlas

Data Sources: Saskatchewan Atlas

Relevancy – Application:

Access to aquifers by a town varies due to well depth and proximity to sourcing water from rivers.

The aquifers include:
Cumberland, Mannville, Judith River, Blanket, Tertiary,
Tertiary Bedrock and Eastend-Ravenscrag.

The following aquifers yield potable water Cumberland, Mannville, Judith River, Tertiary and Eastend.

Assessment to Clusters

The following identifies the various towns' proximity by Aquifer. Note that we do not know if each town draws water from these aquifers.

Aquifer	Towns
Mannville	Meadow Lake, Spiritwood, Tisdale, Wadena, Foam Lake, Canora, Indian Head, Moosomin, Watrous
Judith River	Battleford, Unity, Biggar, Outlook, Davidson, Maple Creek
Blanket	Wynard, Melville
Tertiary	Big River, Humboldt,
Tertiary Bedrock	Kamsack, Rosetown
Eastend-Ravenscrag	Shaunavon, Assiniboia

Data Issues

We have identified groundwater aquifers but we do not know the actual supply of water to each town by each Aquifer. Contact Saskatchewan Resource and Management for further information.

Contact and Date of Data

LMS
Saskatoon, SK
Digitized Saskatchewan Atlas
2001

Water Supply and Waste Water Treatment

A town's access to water supply is critical in attracting agricultural processors that rely on water quality and quantity as part of their production process. Any change in the variability of water supply in terms of volume would hinder and increase production costs. Information concerning the source and supply of water is not readily available and thus cannot be incorporated into the analysis. If further information is required please contact directly with SERM for specific Town information.

Pam Minifie
Saskatchewan Environment and Resource Management
Regina, SK
306.787.8002

We identified the key 30 towns in our analysis to their Waste treatment type. All towns have Secondary Treatment system, which comprise of a two-cell lagoon system. The first cell of the lagoon is for treatment of waste and the second cell is used as storage.

All towns have secondary systems and we do not know which individual towns are at their capacity or if they have to expand their existing system. For specific information on towns capacity and future endeavors contact, Saskatchewan Environment and Resource Management in Regina.

6. Surface Irrigation

Assumptions: Sask Water Irrigated Acres as August 2001 - 334,000 acres

Data Sources: Sask Water

Relevancy – Application:

There are three types of irrigation applications used in Saskatchewan; are backflood and sprinkler and surface.

The acres used in each application are as follows:

Sprinkler	176,000
Surface	61,000
Backflood	95,000
Total	332,000

There are four development areas across the Province listed as follows with their corresponding acres as of 1997:

Lake Diefenbaker (LDDA)	96,000
Southwest (SWDA)	144,000
Southeast	38,000
Northern	44,000

Sask Water quantified the application of irrigation by crop type as follows in 1995.

		Percentage of Acres		
Crop Type	LDDA	SWDA	Other	Total
Forage	24%	83%	30%	46%
Cereals	48%	13%	52%	36%
Oilseeds	15%	2%	14%	10%
Pulse	9%	2%	2%	5%
Other	45		2%	2%

Source: Saskatchewan Irrigation Impact Analysis,
Sask Water, 1995

Assessment to Clusters

The town of Outlook is the central area of the LDDA and also has an Irrigation Demonstration Site Research Farm. There are also two companies that distribute Irrigation Systems located in Outlook. In addition, Sask Water has a research centre located in Outlook. This area uses Sprinkler and Surface irrigation systems.

The towns of Maple Creek and Shaunavon are located in the SWDA. This area relies on spring backflooding systems of 40,000 acres and the majority of applications are applied for forages because of the large livestock population in this region.

Data Issues

Sask Water can also provide information regarding additional acres that can be easily access for irrigation.

Contact and Date of Data

John Linsley
Sask Water
Outlook, SK
306.867.5527
September 2001

7. Water Distribution Pipeline System

Assumptions: 2001 Saskatchewan Water Pipeline System

Data Sources: Sask Water 2001

Relevancy – Application:

A town's access to water supply is critical in attracting agricultural processors that rely on water as part of their production process. Any change in the variability of water supply in terms of volume would hinder and increase production costs.

Towns served by pipeline systems have a reliable supply of water for development purposes.

The map shows the water pipeline system classed to water line type. There are 6 classes. These are Sask Water Treated Line, Sask Water Raw Water, Rural Treated Water, Rural Raw Water, Canal, and Belle Plaine Water Line.

Raw Water is untreated and is mainly used for Irrigation and Industrial purposes. The difference between Rural Lines, BP –Buffalo Pound and Sask Water Line is that charges for water are paid to Sask Water as compared to the town or RM source for rural lines and BP is from Regina-Moose Jaw.

Assessment to Clusters

The following lists the towns served by pipeline systems:

Sask Water Treated Water Lines
Humboldt, Outlook, Melfort

Rural Treated Water Lines
Melville, Canora, Kamsack

Data Issues : None

Contact and Date of Data
Kevin Graham
Sask Water
Outlook, SK
306.694.3016
October 2001

WILDLIFE AND CROWN LANDS

8. Protected Wildlife Areas

Assumptions: 2001 Wildlife land protected by Provincial government.

Data Sources: Saskatchewan Environment & Resource Management

Relevancy – Application:

Competition for land use in the future will grow. With the more intense and integrated use of land there will be increasing pressures to convert agriculture land used for environmental and other purposes.

Sustainable agriculture and bi-diversity are two common themes in future land use management objectives.

The Provincial government classifies wildlife lands as either nature preserves or hunting lands.

Assessment to Clusters

Most towns are situated in RM's with less than 1,400 acres allocated for Wildlife protection.

Data Issues

None

Contact and Date of Data

Saskatchewan Environment & Resource Management
Regina
October 2001

9. Provincial Crown Land Acres

Assumptions: Saskatchewan Agriculture and Food Land as of 2001

Total Crown land is 7 million acres; 6 million is used as Pasture (Provincial Community Pastures) and Lease Grazing and 1 million as Cultivated. [1]

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

There are three class types of Crown land in the province; cultivated, pasture and grazing. Cultivated land can be leased up to 33 years. Typically land leases change frequently between parties and are smaller in area size than pasture lands. Pasturelands are grouped as Co-op or Community Pastures and also are leased privately. Typically, pastureland is leased for 33 years. Pastureland does not change hands because of the initial investment of the lessee for fences and infrastructure required to set up livestock grazing facility. The PFRA manages the land as community pastures.

Assessment to Clusters

The larger tracts of pasture and grazing land are located in Southwest and Northwest Saskatchewan.

With the change in the Western Grain Transportation Act in 1995, freight costs to export markets for cereal grains increased. Thus areas with higher freight rates or costs to market, may take advantage of changing their marginal crops or land from export base crops to forage and livestock grazing. The area comprising of Eastern Saskatchewan adjacent to the Manitoba border is one area that most suitable to change from annual cropping to permanent forage or pasture systems.
The majority Cultivated Crown land is located in Northeastern Saskatchewan around Nipawin, and Hudson Bay.

Data Issues

The land acres shown are on a RM basis and do not indicate the actual site of crown land that is leased.

Contact and Date of Data

Mary Ellen Carlson, ADM
Saskatchewan Agriculture and Food
Regina, SK
306.787.5247

[1] Saskatchewan Agriculture and Food

10. Parks No map no data

Assumptions: 2001 Parks

Data Sources:

Relevancy – Application:

Assessment to Clusters

Data Issues

No data - waiting ISC

Contact and Date of Data

SOIL

11. Soil Capability for Agriculture

Assumptions: Soil Crop Capability

Data Sources: University of Saskatchewan

Relevancy – Application:

Soils are classed under the Canadian Land Inventory(CLI) system which classifies soils based upon their capability and limitations for agriculture. There are different class rankings and sub-classes that define the soil capability and limitations. There are 7 capability classes and 12 subclass limitations. The limitation subclasses are based upon different soil conditions such as climatic, topography, moisture, erosion, salinity etc which influences the soil's agriculture capability

Class 1 soils have no limitation for crop use.
Class 2 soils have moderate limitations some conservation practices.
Class 3 soils have moderate severe limitations.
Class 4 soils have severe limitations and require special conservation practices.
Class 5 soils have severe limitations and are more suited to forage, and can be improved.
Class 6 soils have extreme limitations, with no ability for improving the soil for crop use.
Class 7 soils have no capability for farming.

Assessment to Clusters

The majority of land across the southern part of the province is in Soil Classes 1 to 3 and is in cropland production. There are pockets of Class 4 and 5 soil types situated in the Southwestern and Northwestern regions of the province.

We identified the towns by Soil Class and Subclass as shown below. Some locations were between classes and thus were shown in two classes.

Class Capability	Limitations	Towns
Class 1		Melfort, Tisdale, Canora, Indian Head
Class 2	Moisture Retention	Wynyard, Foam Lake, Humboldt, Moosomin, Battleford, Wadena, Melville, Kamsack
Class 2	Climatic Rainfall	Kindersley, Rosetown
Class 3	Moisture Retention	Swift Current, Shaunavon, Assiniboia, Unity
Class 4		Outlook, Carrot River, Kamsack
Class 5		

Data Issues

Soil maps are shown on large geographic base and individual soil zones can vary to regional and very site-specific micro basis.

Contact and Date of Data

Henry de Gooijer
University of Saskatchewan,
Saskatoon, SK
306.966.4217

October 2001

12. Water and Wind Erosion (two maps)

Assumptions: Soil Erosion is identified by Water or Wind

Data Sources: University of Saskatchewan

Relevancy – Application:

Soil erosion caused by water is found in soils where retention is low and run-off is quite high. This can be caused by factors such as soil texture, topographic situation of the soil, rainfall density, and rainfall frequency. Areas of the province with high to very high-risk conditions for water erosion are primarily situated in the south-central adjacent to the US border and in pockets across the province.
Soil erosion caused by wind is because of soil texture and wind speed. Sandy soils are more prone to wind erosion than clay or loamy type soils. Wind erosion is more prevalent in the southern region and follows the South Saskatchewan River valley.
Although some areas have high-risk rankings, measures can be taken in these areas to reduce the susceptibility of erosion conditions.

Assessment to Clusters

Towns situated in high to very high erosion soil types include:

Town	Erosion	Condition
Kindersley	Wind	Moderate
Outlook	Wind	High
Rosetown	Wind	Moderate
Shaunavon	Water	Low
	Wind	High
Shellbrook	Wind	High
Maple Creek	Wind	Moderate
Assiniboia	Wind	Moderate
Melfort	Wind	Moderate
Battleford	Wind	High

Data Issues

The actual site topography and climatic conditions are critical to identify the actual intensity of erosion

Contact and Date of Data

Henry de Gooijer
University of Saskatchewan,
Saskatoon, SK
306.966.4217
October 2001

13. Salinity

Assumptions: 2000 Soil Map

Data Sources: University of Saskatchewan

Relevancy – Application:

Areas with higher saline contents in soils may limit the types of agriculture development on the soils.

Assessment to Clusters

Towns in areas of Moderate Soil Salinity

Shellbrook, Wadena, Foam Lake, Wynyard

All other locations had Very Slight or were Unclassified.

Data Issues

None

Contact and Date of Data

Henry de Gooijer
University of Saskatchewan,
Saskatoon, SK
306.966.4217
October 2001

CLIMATE

14. Annual Precipitation

Assumptions: Environment Canada 10 year averages for
Total Precipitation, rainfall and snowfall

Data Sources: PFRA

Relevancy – Application:

Precipitation is critical in both crop and livestock production.
The majority of the province enjoys over 360 mm per year.
The western central district has the least amount of precipitation.

Assessment to Clusters

Towns with the most rainfall per year, over 422 mm, include Moosomin, Esterhazy, Melville, Kamsack, Canora, Hudson Bay, Nipawin, and Big River.

Towns with less than 357 mm per year include Maple Creek, Kindersley, Rosetown, Outlook and Biggar.

Data Issues

Total Precipitation was based upon the 30 year average, covering the period 1961 to 1990.

Contact and Date of Data

PFRA
Dean Smith
Regina, SK
306.787.5117
September 2001

16. Effective Growing Degree Days

Assumptions:

Growing Degree days is an energy term obtained by subtracting the value five from the average daily temperature against a threshold base temperature of 5 degree C. The vales for each day are added to together since the beginning of the season.

Data Sources: Environment Canada & PFRA

Relevancy – Application:

Growing Degree days are used to compare the progress of a growing season to the long-term average. They can be used to estimate crop development stages and maturity dates. Certain crops require longer growing periods for development.

There are 3 main growing day classes across Saskatchewan

1000-1200
1200 to 1400
1400 to 1650

Assessment to Clusters

Towns situated in the 1000-1200 degree days include:
Spiritwood, Big River, Hudson Bay

Towns situated in the 1200-1400 degree days include:
Unity, Battleford, Shellbrook, Nipawin, Melfort, Tisdale, Humboldt, Wadena, Foam Lake, Canora, Kamsack, Melville, Esterhazy, Shaunavon, Unity

Towns situated in the 1400 to 1650 degree days include:
Kindersley, Rosetown, Outlook, Davidson, Watrous, Indian Head, Moosomin

Data Issues

None

Contact and Date of Data

PFRA
Dean Smith
Regina, SK
306.787.5117
September 2001

17. Precipitation - Evapotranspiration

Assumptions: 2000 Climate Data Environment Canada

Data Sources: Environment Canada & PFRA

Relevancy – Application:

This map illustrates the Precipitation to Evapotranspiration rate as calculated by Environment Canada. This map indicates that for the most part Saskatchewan is losing moisture each year. The majority of the province is in a negative loss position as precipitation is less than evaporation in any year.

Assessment to Clusters

Areas in the south and towards the Southwest lose more to evaporation than gain in moisture from precipitation.

Data Issues

None

Contact and Date of Data

PFRA
Dean Smith
Regina, SK
306.787.5117
September 2001

18. Wind Direction and Speed

Assumptions: 2000 Climate Data Environment Canada

Data Sources: Environment Canada & PFRA

Relevancy – Application:

Appendix A contains wind rosette information across reporting stations in Saskatchewan. The following towns are represented in the Appendix A:

Assiniboia, Broadview, Coronach, Cypress Hills, Elbow, Estevan, Kindersley, Leader, Lucky Lake, Maple Creek, Melfort, Moose Jaw, North Battleford, Prince Albert, Regina, Rockglen, Rosetown, Saskatoon, Swift Current, Val Marie, Watrous, Weyburn, Wynyard, Yorktown.

The wind rosettes show the frequency distribution of prevailing winds from 1994 –2000.

Location of ILO, Ethanol plants, Feed plants or other processors need to consider the direction of wind in planning locations to minimize the level of pollution or smell of plants to towns.

Assessment to Clusters

The majority of towns have west to northwest as the main occurrence of wind direction.

If individual information is required on a location these towns can be used as a guide to compare the frequency of prevailing wind occurrence.

Data Issues

None

Contact and Date of Data

PFRA
Dean Smith
Regina, SK
306.787.5117
September 2001

19. Climate Rating

Assumptions: 2001 Environment Canada

There seven class values with respect to suitability for small grain production. The class system is based upon climate, landscape and soil factors. Class 1-3 is considered suitable, 4 becoming marginal and 5,6 and 7 becoming non-suitable. The classes were also distinguished to a climate rating based on whether the region had a moisture or heat limitation.

Data Sources: Environment Canada

Relevancy – Application:

Climate rating suitability was based upon the classification system developed by Environment Canada. The northern grain belt area of southern Saskatchewan is classed at 2 and 3. The central area of the province is in classes 4 and 5. Class 3 and 4 are the largest land areas in the Province.
The majority of class regions also are in climate areas of Moisture limitations across the southern and central parts. The Northern region is a climate area with Heat limitations.

Assessment to Clusters

Towns were identified by their relative location based upon the classes as follows:

Class 2 Heat Limitations :
Meadow Lake, Spiritwood, Big River, Hudson Bay, Tisdale.
Class 2 Moisture Limitations:
Unity, Battleford, Shellbrook, Nipawin, Melfort, Humboldt, Watrous, Davidson, Wadena, Wynyard, Foam Lake, Canora, Kamsack, Melville, Indian Head, Esterhazy, Moosomin
Class 3 Moisture Limitations:
Kindersley, Rosetown, Outlook, Maple Creek , Shaunavon, Assiniboia

Data Issues None

Contact and Date of Data

PFRA
Dean Smith
Regina, SK
306.787.5117
September 2001

AGRICULTURAL SERVICES

20. Fertilizers

Assumptions: 2000 Listing of AG Retail Blend Sites
Identified 400 Fertilizer Blend Plants

Data Sources: Canadian Food Inspection Agency
Canadian Fertilizer Quality Assurance Program 2000

Relevancy – Application:

Fertilizer is commonly used across Saskatchewan. A greater percentage of farms above 70% apply fertilizer in the Black soil zone where there is more rainfall. The central to northeastern areas of the province have more than 70% of farms applying fertilizers.

Towns situated in these regions will have more than one service company providing fertilizers. Most grain companies provide fertilizer services and arrange supply through vertical integration or by purchasing material from fertilizer producers. There are also independent farm fertilizer suppliers.

Assessment to Clusters

The towns with more than 4 fertilizer plants include Canora, Davidson, Kindersley, Melfort, Rosetown, Tisdale and Wadena

These towns are also in areas of higher yields, oilseeds or pulse crops. The town of Melfort has 9 companies. This is the highest concentration of dealer locations in the province.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532

21. Veterinary

Assumptions: 2001 List of Veterinary Services grouped by town
Identified 176 Vets located in the Province

Data Sources: Sasktel Directory,
Saskatchewan Association of Veterinaries
(contacted - no information provided)

Relevancy – Application:

There were 176 vets identified across the province. Most towns have at least 1 veterinarian. The availability of services will ensure that the livestock sector will grow. The demand for veterinarian services will increase as the livestock population increases.

Assessment to Clusters

Most towns have one veterinary per town. The following towns, however, do not have veterinary services.

Battleford
Big River
Davidson
Moosomin
Wadena

Most vets service both large and domestic animals, however there are some exclusively swine and beef livestock vets. They are located in Humboldt.

Data Issues

No distinction between the type of veterinarian service offered, also some services are through the University or colleges. These were included in the assessment. Veterinary Services Association was approached to contribute data but have not provided information at this time.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532 September 2001

22. Agriculture Implement Services

Assumptions: 2001 List of Dealerships and Service Providers of Ag Equipment
Identified 496 Listings across Saskatchewan

Data Sources: Sasktel Directory

Relevancy – Application:

Concentrations of services for Agriculture Implements provides a strong signal that towns and areas of the province have larger demand for purchasing and servicing of agriculture equipment.

Assessment to Clusters

The largest concentrations of services are located in the larger urban centres of Saskatoon, Regina, Battleford, Yorkton and Swift Current.

The towns with greater than 3 sites include:
Assiniboia, Davidson, Humboldt, Kindersley, Moosomin, Shaunavon, Unity

Data Issues

Not all locations are listed in the Directory.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

23. Feed Mills

Assumptions: 2001 listing of Feed Companies
Identified 21 Mixed feed mill sites across the Province
Does not include Alfalfa and Pellet plants

Data Sources: Saskatchewan Ag and Food
Sasktel
Feed Companies
Agriculture & Agri-Food Canada

Relevancy – Application:

Feed mills play an important role in the future development of the livestock industry. Since 1995 there has been an increase in feed mill development because of elimination of the Crow rate. Towns with high throughput elevators will attract feed mills. Mills are also sometimes located in areas of higher livestock or grain producing areas. There are also some mini feed mills that were developed as part of larger ILO hog operations and are situated at the operation site. Feed mill companies are also associated with meat processors and genetic companies. The majority of mills are located in the large centres of Saskatoon, Regina, North Battleford, and Weyburn.

Assessment to Clusters

About a third of all mills are located in smaller towns. The following towns have feed mills: Humboldt, Hudson Bay, Melfort, Melville, Nipawin, Moosomin, and Tisdale.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

24. Elevators – High Throughputs

Assumptions:

We defined a Highthroughput elevator as an elevator with a storage capacity of greater than 8,000 tonnes. Highthroughput Elevators can also load multi rail cars that are spotted in blocks of 25 to 50 to 75 to 100 car train sets.
Identified 60 locations across the Province with high throughputs
Of these locations, 28 were smaller towns.

Data Sources: 2001 Canadian Grain Commission

Relevancy – Application:

Towns with more than two grain companies will attract more grain to the town.

Assessment to Clusters

Towns with more than one-grain companies have stronger economic conditions because of increased competition and larger delivery volumes.
The following towns had more than one large elevator site:
Canora, Davidson, Foam Lake, Kindersley, Rosetown, Tisdale and Unity.

The following towns have one site:
Assiniboia, Biggar, Hudson Bay, Humboldt, Indian Head, Kamsack, Maple Creek, Meadow Lake, Melfort, Melville, Moosomin and Wadena

The following towns did not have a high throughput elevator:

Battleford, Big River, Esterhazy, Nipawin, Outlook, Shaunavon, Shellbrook, Spiritwood, Watrous, Wynyard

Data Issues

High throughput or inland terminals have also been defined as locations having the capability to load more than a 75-car unit train of grain destined for export in one day. We did not classify elevators to their car loading capability. To review loading car capacity one would have to contact Canadian Pacific, Canadian National or the individual grain companies.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
September 2001

25. Agriculture Research Farms & Plants

Assumptions: 2001 Data Research Agriculture Farms
Identified 25 locations across the Province

Data Sources: Agriculture & Agri-Food Canada,
University of Saskatchewan,
Saskatchewan Ag and Food
Individual Companies,
Sasktel Directories

Relevancy – Application:

Research farms and demonstration farms add value to local communities.

The services required by them provide spin off opportunities.

Assessment to Clusters

Certain towns are located in close proximity to farms. These include:

Canora, Melfort, Indian Head, and Biggar.

The largest concentration of farms is centered around Saskatoon because of its proximity to the University.

Data Issues

Individual Chemical and Grain companies are sometimes reluctant to have others know where there locations are because of confidentiality and security concerns.

Contact and Date of Data

Rick Holm
306.966.5857
University of Saskatchewan

Larry Gutek,
306.933.5568
Saskatchewan Agriculture and Food
September 2001

26. Seed Pedigree Growers

Assumptions: 2001 September List of Member Grower Locations

2000 Data, updated each fall (November) through Canadian Seed Growers Association in Ottawa.

Saskatchewan database has 2,432 entry names pairing growers and varieties
Located across 219 towns
518 single grower locations.

Data Sources: Canadian Seed Growers Association

Relevancy – Application:

The seed growers are at the start of the Value Chain in producing seed to be grown, processed and exported. Areas of concentration show critical areas of seed production by crop type.

Assessment to Clusters

Seed growers are clustered around processing facilities for some crop types such as canola, wheat and oats. Growers require water and fertilizer services so that growers can maximize their yield and quality of seed crop.

Data Issues

Grower data was provided by address town location and does not represent the actual location of seed grower farms.

Contact and Date of Data

Elsie Chartard
Canadian Seed Growers Association
Ottawa
613.236.0497

September 2001

27. Seed Cleaning and Distribution

Assumptions: Locations based on sites as of Oct 1, 2001

Data Sources: Canadian Seed Institute

Relevancy – Application:

Seed cleaning and distribution impacts the amount of seed and types that are marketed throughout the province. The plants shown are registered plants only.

Assessment to Clusters

Current cleaning and distribution systems are located across the province following major road networks systems. Major areas of concentration occur in areas surrounding processing plants for grains. There are also clusters associated in Black Soil zones.

Data Issues

We compared the seed distribution system by town locations. The actual physical site of the facility is unknown and may be located outside of town limits.

Contact and Date of Data

Jim McCulloch
Canadian Seed Institute
Ottawa
October 2001
613.236.6451

28. Auction Marts

Assumptions: Locations based on sites as of Oct 1, 2001

Data Sources: Cattle Website CANFAX

Relevancy – Application:

Access to Auction Marts is required for increasing the growth of the Cattle Livestock Industry.

Assessment to Clusters

Towns with Auction Marts include:

Spiritwood, Tisdale, Battleford, Wadena, Maple Creek, Shaunavon, Assiniboia

Data Issues

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

29. SPI Pork Assembly Yards

Assumptions: Locations based on sites as of Oct 1, 2001

Data Sources: SPI

Relevancy – Application:

To encourage increased hog production with smaller farm sizes requires a collection system to bring market hogs to processors. The location of sites may encourage hog growth to develop in surrounding RM's.

Assessment to Clusters

Towns with Hog Assembly Yards include:

Maple Creek, Humboldt, Melfort, Battleford.

Other Assembly sites located in the province include Luseland, Prince Albert, Watson, Regina, Swift Current, Redvers, and Arborfield.

Data Issues

None.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

INFRASTRUCTURE & UTILITIES

30. Road Systems

Assumptions: 2000 Sask Highways and Transport
Road Classification to Road Type

Data Sources: Saskatchewan Highways and Transport
Saskatchewan Atlas 2000
SHT – weight restrictions and road type
LMS

Relevancy – Application:

Classification of roads impacts both inbound and outbound shipping costs.

Primary, Secondary, Grid
Paved, Thin membrane, Gravel
Weight Restrictions Yearly, Seasonal

Assessment to Clusters

Towns were classified by road type and weight restrictions.
Development may be limited by road weight restrictions.
Identify towns with development potential that may be hindered by road infrastructure conditions.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
September 2001

31. Investment in Roads 1996 to 2000

Assumptions: Compared investment and operation costs for roads across the province, using Public Account Information for 1999-2000 and 2000-2001 for Highways and Transportation.

Compared the Provincial and Federal Investment Programs (CAIP) from PFRA by RM and Town across the province.

Data Sources: Saskatchewan Highways and Transport
Canadian Agriculture Infrastructure Program (PFRA)

Relevancy – Application:

Road expenditures classed to operating and maintenance and new capital for construction were completed for the 1999-2000 and 2000-2001 budget periods as reported in the Public Accounts for Saskatchewan. We show the dollars by year across each highway. The maps do not indicate where the locations of actual dollars were spent. For example, Trans Canada Highway 1 shows dollars across the whole Province and most of the expenditures were associated for twinning projects in the Western half of the Highway.

Canadian Agriculture and Infrastructure Program for the period from 1996 to 2000 was also mapped showing total expenditures by RM or by selected towns. Most of this investment was provided to areas were there was changes due to a new Agriculture processing site or from a Highthroughput Elevator.

Assessment to Clusters

The highway system is critical in the success of future agriculture processing locations. Good access with no weight restrictions will allow manufacturers to ship goods by truck at the most economical cost to competitors to other areas. Also, the direction flow of shipments is critical in identifying if products are heading to markets in the south, east or west. By identifying the trade flow corridors will assist in the allocation of future road investment may be required due to increasing truck traffic.

The following towns are situated on roads where increased expenditures may be required to improve road access and upgrades and weights.

Spiritwood, Big River, Shellbrook, Hudson Bay, Canora, Shaunavon, Outlook, Esterhazy, Assiniboia

Data Issues

Maps show Road expenditures by RM and Town and by Highway or Road and do not indicate where the actual expenditure was situated.

Contact and Date of Data

David Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

32. Rail System and Access

Assumptions: Data compared the current Rail network as of June 2001
Evaluated each railroad's Three Year Plan
Evaluated short line rail systems
Identified Interchange locations

Data Sources: Canadian Association of Railroads
LMS,
Rail websites, Western Producer (PAFF)
The Official Railway Equipment Register

Relevancy – Application:

Lines classified by type: main line, branch line, grain dependent, and short line.

Assessment to Clusters

Towns situated on grain dependent lines or short lines may have lower rail service that is dependent upon demand for services as compared to towns on main lines, which may have daily services.

Certain Rail lines have weight restrictions that limit the carrying capacity of cars transporting grains in hoppers and boxcars. These lines are namely Branch or Grain Dependent. (Contact Rail Company for details re weights)

Locations with Access to two rail carriers would allow any new development to negotiate competitive rates and increased service to markets because of increased competition.

The competitive locations across the province where the two principal railroads of CN and CP physically can interchange rail cars include Lloydminster, Prince Albert, Saskatoon, Allan, Norco, Alwinsal, Rosetown, Moose Jaw, Belle Plaine, Regina, Weyburn, Estevan, Bienfait, Yorkton, Yarbo, and Sylvite (Rocanville).

Data Issues: None

Contact and Date of Data
Ryan Tondevold
LMS
306.955.1532
October 2001

33. Power

Assumptions: 2001 Power Lines by Kilovolts

Data Sources: Sask Power

Relevancy – Application:

Development type may require higher Kilovolt power line access.
We show power line type classed by Kilovolt into the following voltage groups,

25; 72; 138.

Assessment to Clusters

Agriculture processing and ILO operations that require three phase power need to be located or adjacent to areas that have 25 kilovolt service or higher.

All towns have access to 25Kv or higher. Contact Sask Power for actual town and site-specific information.

Data Issues

The lines show relative location and are not to be used for purposes of construction or representing actual sites.

Contact and Date of Data

Jacques Gurette
Sask Power
Regina, SK
306.566.3383
October 2001

34. Compressor Stations

Assumptions: Location of Current Gas Compressor Stations

Data Sources: Sask Energy and Trans Canada Pipelines

Relevancy – Application:

Agriculture processing or development may utilize waste energy from as these sites.

Assessment to Clusters

Towns with Compressor stations include Unity and Melfort.
All towns have access to gas.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

35. Telecommunications – Cellular Coverage

Assumptions: 2001 coverage map from Sasktel

Data Sources: Sasktel

Relevancy – Application:

Cell coverage and the use of wireless technology in industry to monitor operations, trace shipments and provide emergency applications are increasing in use.

There are parts of the province that do not have cell coverage. There are two cell applications used in the province, analog and digital.

Digital service is offered in the area surrounding major urban centres in the province, such as Regina, Saskatoon, the Battlefords, Yorkton, Humboldt, Moose Jaw and Prince Albert. Areas outside of this region are presently analog service.

Assessment to Cluster

The following towns have Analog service: Meadow Lake, Spiritwood, Kindersley, Estevan, Moosomin, Maple Creek, Swift Current, Canora, Kamsack, Tisdale, Melfort, Nipawin, Wadena, and Foam Lake,

Sasktel's objective is to have all areas in the province under Digital service by 2003.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

AGRICULTURE PRODUCTION

36. Crop Insurance Acres 2000

Assumptions: Crop Acres Insured in 2000 by Saskatchewan Crop Insurance
Maps show 69 % of all crop acres.

Data Sources: Saskatchewan Crop Insurance

Relevancy – Application:

The last Census of agriculture was completed in 1996. In order to evaluate an area's crop diversity and capability we compared the 2000 Crop Insurance acres by rural municipalities around the towns. We identify the number of crops types insured and sum them as the diversity count of crops. The greater the diversity of crops the more types of services that are offered and the lower the dependence on a single crop type.

Assessment to Clusters

The following lists the number of insured crop types for principal grains. These towns are situated in high crop diversity areas as crop types were greater than 7: Biggar, Kindersley, Rosetown, Outlook, Assiniboia, Davidson, Watrous, Indian Head, Wynyard

Town	Crop Diversity
Meadow Lake	3
Big River	2
Spiritwood	3
Shellbrook	4
Battleford	4
Unity	5
Biggar	7
Kindersley	7
Rosetown	8
Outlook	8
Maple Creek	4
Shaunavon	6
Assiniboia	7
Davidson	9
Watrous	8
Humboldt	4
Indian Head	8

Town	Crop Diversity
Moosomin	5
Esterhazy	6
Melville	6
Canora	5
Kamsack	4
Foam Lake	5
Wynyard	7
Wadena	6
Melfort	5
Tisdale	5
Nipawin	5
Hudson Bay	4

Data Issues

Not all crops are insured and the list only includes the principal crops and did not include other crops such as vegetables or herbs and nutraceutical crops. The provincial number for the percentage of all acres insured was 69 percent and this is not reported on a RM basis.

Contact and Date of Data

Keith Hayward
Saskatchewan Crop Insurance
Melville, SK

September 2001

37. 2000 Wheat Durum Barley Oats Cereals Crop Insured Acres

Assumptions: Crop Acres Insured in 2000 by Saskatchewan Crop Insurance
Maps show 69% of all acres

Data Sources: Saskatchewan Crop Insurance

Relevancy – Application:

Map shows the insured production acres of cereals by RM in 2000.

The Southern half is primarily durum and spring wheat.
The Central west district is wheat.
The Northwest is barley and wheat.
The Northeast is wheat, barley, and oats.

Agricultural processing facilities also influence where grains are grown. Acres close to processing facilities tend to increase the crop acres in the region to the type of demand required by the processor. Areas where Oat and Canola plants are located have larger proportion of cropland allocated to their production.

Assessment to Clusters

Towns situated in large acres of wheat, durum, oats, and barley have different service needs and infrastructure developed to collect grain production than towns located in higher oilseed areas.

The following lists towns by primary cereal crop acres.

Kindersley, Assiniboia, Watrous, Unity, Biggar, Indian Head are wheat.
Wadena, Foam Lake, Canora, Spiritwood are barley.

Data Issues

The provincial number for the percentage of all acres insured was 69 percent and this is not reported on a RM basis.

Contact and Date of Data

Keith Hayward
Saskatchewan Crop Insurance
Melville, SK September 2001

38. 2000 RM Oilseed Insured Acres

Assumptions: Oilseed Crop Acres Insured in 2000 by Saskatchewan Crop Insurance, Maps show 69 % of all acres Canola and Flax by RM

Data Sources: Saskatchewan Crop Insurance

Relevancy – Application:

Oilseed acres by RM were classified to canola and flax.

Flax acres are seen in RM's located in the south eastern and eastern part of the province.

Canola acres follow the Dark Brown and Black soil zones and are primary central, northwest, and northeast RMs.

Canola has more fertilizer applied, which requires phosphate and nitrogen products.

Assessment to Clusters

Towns with a larger proportion of acres growing canola include: Humboldt, Nipawin, Canora, Kamsack

Towns with a larger proportion of flax acres include Indian Head, Watrous, and Davidson.

Data Issues

The provincial number for the percentage of all acres insured was 69 percent and this is not reported on a RM basis.

Contact and Date of Data

Keith Hayward
Saskatchewan Crop Insurance
Regina, SK
September 2001

39. 2000 RM Pulses Crop Insured Acres

Assumptions: Pulse Crop Acres Insured in 2000 by Saskatchewan Crop Insurance,
Maps show 69 % of all acres for peas, lentils, and chickpea by RM

Data Sources: Saskatchewan Crop Insurance

Relevancy – Application:

Because of the growth in acres of pulse crops there has been a significant growth in the number of processing facilities that clean, split and bag pulses before shipping to world markets. Shipments of pulses are either in bulk or in bag- truck- container. The form depends on the market and end use.

Peas are more prevalent in the northern half of the province. Chickpeas and lentils like drier conditions and are primarily grown in RM's situated in the Southern and central part of the province.

Given the town and its pulse type, there are different opportunities for agricultural processing development and infrastructure for shipping.

Towns situated on secondary and off main line rail will incur higher transportation costs than locations on mail line or primary highways. This is because of higher weight loadings on primary roads and more availability of service on rail lines. Peas for feed use are shipped in bulk whereas food grade peas are shipped in bags using Intermodal trucks or containers. Lentils are shipped in both bulk and bag. Chickpeas also use both modes.

Assessment to Clusters

Towns with larger tracts of peas include Unity, Melfort, Tisdale, Humboldt, Shellbrook, and Kindersley

Towns with larger tracts of lentils include Kindersley, Rosetown, and Outlook

Towns with larger acres in chickpeas include Shaunavon and Assiniboia

These towns may have more Pulse processors located in their immediate area.

Data Issues

The provincial number for the percentage of all acres insured was 69 percent and this is not reported on a RM basis.

Contact and Date of Data

Keith Hayward, Saskatchewan Crop Insurance
Regina, SK, September 2001

40. Data 1996 RM Cereals, Oilseed, Pulse, Forage

Assumptions: 1996 Census Crop Acres by RM

Data Sources: Agriculture & Agri-Food Canada Census 1996

Relevancy – Application:

With changes in the Western Grain Transportation Act in 1995 that increased the costs of shipping grains offshore, farmers responded by changing their cropping practices.

The 1996 census of crop acres provides a benchmark of the changes since the increase in freight costs. Crop acres of wheat-barley for export markets have declined relative to other crops such as canola and pulses.

Assessment to Clusters

Wheat, durum, and barley were the dominant crops across the majority of RM's in 1996.

Alfalfa and Hay acres were seen in the northwest and southwest regions of the province, reflecting the local livestock populations in these regions.

Data Issues

None

Contact and Date of Data

Statistics Canada
1996 Census of Agriculture
Ottawa, ON

41. Crop District Maps Changes Wheat Acres 1996 -2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in wheat acres over the last five years:

Towns in crop districts with wheat acres remaining the same:

Unity, Maple Creek, Shaunavon

Towns in crop districts with wheat acres decreasing:

Wadena, Wynyard, Foam Lake, Canora, Kamsack, Big River, Spiritwood, Shellbrook, Indian Head, Outlook, Kindersley, Rosetown, Assiniboia, Melville, Esterhazy

Towns in crop districts with wheat acres increasing:

Nipawin, Tisdale, Melfort, Hudson Bay

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

42. Crop District Maps Changes Durum Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in durum acreage over the last five years:

Towns in crop districts with durum acres remaining the same:

Kindersley, Rosetown

Towns in crop districts with durum acres decreasing:

Maple Creek

Towns in crop districts with durum acres increasing:

Watrous, Davidson, Assiniboia, Indian Head, Shaunavon, Melville

Data Issues

None

Contact and Date

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

43. Crop District Maps Changes Barley Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in barley acreage over the last five years:

Towns in crop districts with barley acres remaining the same:

Shaunavon, Humboldt, Wadena, Wynyard, Foam Lake, Canora, Kamsack, Melville, Esterhazy, Unity

Towns in crop districts with barley acres decreasing:

Nipawin, Tisdale, Melfort, Hudson Bay, Big River, Spiritwood, Shellbrook, Indian Head, Outlook, Kindersley, Rosetown, Assiniboia, Melville, Esterhazy, Meadow Lake

Towns in crop districts with barley acres increasing:

Kindersley, Outlook, Davidson, Watrous, Maple Creek, Moosomin

Data Issues: None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

44. Crop District Maps Changes Oat Acres 1996 –2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in the acreage of oats over the last five years:

Towns in crop district with oat acres remaining the same:

Outlook, Watrous, Davidson, Nipawin, Tisdale, Melfort, Hudson Bay

Towns in crop districts with oat acres decreasing:

Big River, Spiritwood, Shellbrook, Indian Head, Outlook, Kindersley, Rosetown, Assiniboia, Melville, Esterhazy, Unity, Maple Creek, Shaunavon

Towns in crop districts with oat acres increasing:

Wadena, Wynyard, Foam Lake, Canora, Kamsack,

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

45. Crop District Maps Changes Canola Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in canola acreage over the last five years:

Towns in crop districts with canola acres remaining the same:

Moosomin, Indian Head, Meadow Lake, Outlook Assiniboia, Melville, Esterhazy

Towns in crop districts with canola acres decreasing:

Kindersley, Rosetown,

Towns in crop districts with canola acres increasing:

Nipawin, Tisdale, Melfort, Hudson Bay, Davison, Watrous, Wadena, Wynyard, Foam Lake, Canora, Kamsack, Big River, Spiritwood, Shellbrook,

Data Issues None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

46. Crop District Maps Changes Flax Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in flax acres over the last five years:

Towns in crop districts with flax acres remaining the same:

Big River, Spiritwood, Shellbrook,

Towns in crop districts with flax acres decreasing:

Indian Head, Outlook, Kindersley, Rosetown, Assiniboia, Melville, Esterhazy, Nipawin, Tisdale, Melfort, Hudson Bay, Humboldt

Towns in crop districts with flax acres increasing:

Davidson, Watrous, Wadena, Wynyard, Foam Lake, Canora, Kamsack, Moosomin

Data Issues : None

Contact and Date of Data
Ryan Tondevold
LMS
Saskatoon, SK
October 2001

47. Crop District Maps Changes Pea Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in pea acres over the last five years:

Towns in crop districts with pea acres remaining the same:

None

Towns in crop districts with pea acres decreasing:

None

Towns in crop districts with pea acres increasing:

Unity, Maple Creek, Shaunavon, Nipawin, Tisdale, Melfort, Hudson Bay, Wadena, Wynyard, Foam Lake, Canora, Kamsack, Big River, Spiritwood, Shellbrook, Indian Head, Outlook, Kindersley, Rosetown, Assiniboia, Melville, Esterhazy, Davidson, Watrous, Outlook, Meadow Lake, Battleford

Data Issues : None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

48. Crop District Maps Changes Lentil Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in lentil acres over the last five years:

Towns in crop districts with lentil acres same:
None
Towns in crop districts with lentil acres decreasing:
None
Towns in crop districts with lentil acres increasing:
All areas saw increase acres of Lentils.
Kindersley, Rosetown, Outlook, Davidson, Watrous, Indian Head, Melville, Assiniboia, Shaunavon

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

49. Crop District Maps Changes Mustard Acres 1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

We identified three trends in mustard acres over the last five years:

Towns in crop districts with mustard acres remaining the same:

Maple Creek, Unity, Kindersley, Maple Creek

Towns in crop districts with mustard acres decreasing:

Watrous, Davidson, Melville, Esterhazy, Humboldt, Moosomin
Wadena, Wynyard, Foam Lake, Canora, Kamsack

Towns in crop districts with mustard acres increasing:

Outlook, Shaunavon, Assiniboia,

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
October 2001

50. Crop District Map Changes Chickpea Acres1996-2000

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Cannot produce no data through SAF

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

Data Issues: ***Require statistics***

Contact and Date of Data

51. Crop District Maps Forage 1996-2000 Acres

Assumptions: Provincial Data showing Crop Acres by Crop District over 5 years

Cannot produce data through SAF

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Changing crop acres reflect the changes in commodity prices, the district's past ability to ship export grains, and changes in domestic consumption. As the transportation costs increased there was an overall decline of certain crop acres over time. Also since 1996 there has been a decrease in the amount of summer fallow acres.

Assessment to Clusters

Data Issues : ***Require statistics***
Contact and Date of Data

LIVESTOCK

52. Intensive Livestock Operations (ILO)

Assumptions: 2001 Locations by RM by Type
Shows ILO developed since 1995 with an investment greater than $1 million. There have been 117 ILO developed since 1995.
Hogs, beef, horse, mixed and poultry were classified.
There are 92 Hog ILO, 8 Beef, 1 Horse, and 10 Poultry ILOs in the province.

Data Sources: Sask Agriculture and Food, SERM

Relevancy – Application:

Locations of intensive livestock operations have increased over the last 4 years. The majority of new operations have been hog farms with some beef operations. Different services and industries may develop around towns with ILO's.

Assessment to Clusters

The following towns have seen ILO developed in close proximity to their location.

ILO Types	Towns
Hog	Humboldt, Wadena, Foam Lake Shaunavon, Melfort, Biggar, Maple Creek
Beef	Unity
Mixed	Rosetown, Melfort
Poultry	Wynyard

Data Issues

We show only the number of ILO operations per RM and did not evaluate the number of animals.

Contact and Date of Data

Chris Low
SERM-SAF
Regina, SK
306.787
August 2001

53. Location Hog Farms 1996 Census and Growth Hogs 1991-2001 by Crop District (two maps)

Assumptions: 1996 Census and Provincial Ag Statistics
Sask Pork 2001 Members

Data Sources: Sask Agriculture and Food & Statistics Canada
Sask Pork

Relevancy – Application:

These maps show the 1996 farms and hog population with the new Hog ILO that have been developed since 1996.

As Crop District areas increase their livestock production it may influence the types of crops grown in the region. For example increased livestock may increase local demand for feed barley acres.

Assessment to Clusters

Towns with hog ILO operations or in close proximity to an ILO include:

Humboldt, Biggar, Kindersley, Rosetown, Wadena, Melfort, Outlook, Shaunavon, Watrous, Unity

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

54. Beef Farms 1996 Census and Growth Cattle 1991-2001 by Crop District

(two maps)

Assumptions: 1996 Census and Provincial AG Statistics

Data Sources: Sask Agriculture and Food & Statistics Canada

Relevancy – Application:

These maps show the 1996 farms and cattle population with the new feedlots that have been developed since 1996.

As Crop District areas increase their livestock production it may influence the types of crops grown in the region. For example increased livestock may increase local demand for feed barley acres.

Assessment to Clusters

Towns with beef ILO include Biggar and towns situated in close proximity to feedlots include Unity

Towns with greater than 2000 cattle farms located within 90 km of each town include:

Towns in crop districts that increased cattle population from 1991 to 1999 include Big River, Spiritwood, Shellbrook, Watrous, Maple Creek, Shaunavon, Assiniboia, Wadena, Wynyard, Foam Lake, Canora, Kamsack

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

55. Beef Feedlots

Assumptions: Location of principal feedlots
Identified 47 locations across the Province

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Feedlots are developing across the province. There is a higher concentration of feedlots in the southwest and central west district of the province than the north and eastern areas. Towns with feedlots may develop other support services for the feedlot.

Assessment to Clusters

Identified 15 feedlots in the 29 selected towns.

Towns situated close to feedlots include:

Battleford, Meadow Lake, Shellbrook, Nipawin, Melfort, Biggar, Melville, Moosomin, Indian Head, Maple Creek, Rosetown and Shaunavon, Unity

Data Issues

The actual location of the feedlot is not shown and it is shown as the closest Town mailing address.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

56. Bison

Assumptions: Current 2001 Member Directory by Town Location
Identified 400 Bison Producers across the Province.

Data Sources: Saskatchewan Bison Association

Relevancy – Application:

Growth in Bison farms has increased over the last 5 years.
Bison Producers are located throughout the Province.
According to the Saskatchewan Bison Association there are approximately 28,000 bison in Saskatchewan. There is an estimated 440 producers in the province.

Assessment to Clusters

The following towns had more than 10 producers located in their area:
Melfort, Tisdale,
The following towns had 5 or more producers:
Big River, Nipawin, Hudson Bay, Wadena, Humboldt, Melville, Kindersley, Battleford
The following towns had less than 5 producers:
Maple Creek, Shaunavon, Moosomin, Wynyard, Foam Lake, Unity, Biggar, Outlook, Rosetown, Assiniboia

Data Issues

The actual location of the farm is not shown and it is shown as the closest town mailing address. Not all producers are members of the association. There is no requirement for licensing bison production units thus this may affect new investment due to unknown farms and accurate estimates of actual bison populations.

Contact and Date of Data

Leon Brin
Saskatchewan Bison Association
August 2001

57. Elk and Fallow Deer Farms 1996 Census

Assumptions: 1996 Federal Census Data

Data Sources: Agriculture & Agri-Food Canada

Relevancy – Application:

Deer farms have been increasing in the last five years. There is limited information pertaining to new growth areas. This may hinder development of the industry.
Thus we used the census data from 1996 to compare RM population of Deer and Elk.

Assessment to Clusters

Towns situated in close proximity to Deer and Elk populations include:

Unity, Nipawin, Kindersley, Melfort, Shellbrook

Data Issues

There is a need to identify Elk farms across the province by nearest town location in order to facilitate future specialty livestock processing.

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

58. Poultry Farms 1996 Census Information

Assumptions: 1996 Federal Census Data

Data Sources: Agriculture & Agri-Food Canada

Relevancy – Application:

Poultry population and ILO are concentrated to urban areas such as Saskatoon and close to processing sites at Wynyard.

Assessment to Clusters

There is one ILO poultry site located near the town of Wynyard.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

59. Horses 1996 Information Crop District

Assumptions: 1996 Federal Census Data

Data Sources: Agriculture & Agri-Food Canada

Relevancy – Application:

The 1996 census is the most current data available to identify where locations of horses are by RM. There is one ILO horse operation located close to Unity.

Assessment to Clusters

Only one ILO at near Unity.

Equine ranching is extensive in Southeast Saskatchewan in the area between Moosomin to Carlyle to Estevan.

It is anticipated that there will be significant growth in this industry in the next five years.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
October 2001

AGRICULTURE PROCESSING

60. Cereal Wheat and Durum

Assumptions: Locations in 2001 of Milling Operations
There are 4 plants in the Province with a capacity of 177,000 tonnes per year.

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory
Grain & Milling Annual 2000 – Sosland Publishing Company

Relevancy – Application:

There are four operations in Saskatchewan
Two plants are located in Saskatoon and both mill wheat and durum.

Assessment to Clusters

Most flour mills are located in large urban areas. There is one small mill located in Humboldt, which is organic.
Transportation and distribution costs can represent over 40 % of the cost to flour to bakeries. Flourmills are usually located in close proximity to large urban centres where the demand is greatest to lessen costs of distribution of bulk flour.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

61. Cereals: Organic Mills and Organic Farms

Assumptions: Locations in 2001 of Milling Operations
Identified 2 locations in the Province
Total Capacity is estimated at 23,000 metric tonnes per year.
Saskatchewan Agriculture and Food identified 433 organic farms in 2000.

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory
Grain & Milling Annual 2000 – Sosland Publishing Company

Relevancy – Application:

Organic production has been increasing in the past 5 years as seen in the amount of farms and acres that have switched to organic farming. A recent survey in 2000 completed by Saskatchewan Agriculture and Food and the Saskatchewan Organic Directorate identified 433 organic producers in the province who farmed 343,000 acres including cultivated, pasture and bush.

There is one large processor located at outside Regina and a smaller processor in Humboldt.

Assessment to Clusters

Humboldt was the only small town, which had an organic mill.

Organic farms are located throughout the province however; there are small pockets of farms in the northeast area of the province.

Data Issues

Organic production will increase each year has new farms that have been recently certified come into production.

None

Contact and Date of Data
Dave Spearin
LMS
Saskatoon, SK
306.955.1532

62. Cereal Oats

Assumptions: 2001 Current Operations

Identified 4 plants across the Province
Total demand for is estimated at 233,000 tonnes per year that represents 23 percent of the 2001-estimated production of 1 million tonnes.

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada
Grain & Milling Annual 2000 – Sosland Publishing Company

Relevancy – Application:

Oat mills have increased production since 1996 with the recent expansion of the mills in Dalmeny and in Yorkton.

Also since 1996 oat production has shifted from Alberta and northeastern Saskatchewan to Northeastern Saskatchewan and Manitoba.

The majority of oat production is exported to the United States and processed.

Assessment to Clusters

There are three oat plants located in Saskatoon and one in Yorkton. Major export terminals for oats include Wadena, Yorkton, and Canora.

Locations for future oat milling would expand in the Canora to Wadena areas.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

63. Oilseed Canola

Assumptions: 2001 Current Operations
Identified 3 plants across the Province
Total estimated demand for canola is 1.25 million per year representing about 63 percent of Saskatchewan's 2000 production of 2 million tonnes. (Saskatchewan Agriculture and Food)

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada

Relevancy – Application:

Canola and biotech applications may increase. Plants in the future may be smaller and service a distinctive growing region. Plants would locate close to growers and in areas of good soil for production.

Assessment to Clusters

Plants are located in Nipawin, Lloyminster, and Clavet.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

64. Oilseed Flax

Assumptions: 2001 Current Operations
Identified 2 plants across the Province. Capacity is unknown.

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada
Saskatchewan Trade Export Program

Relevancy – Application:

Flax straw and seed milling are new processing developments in the province. Flax is increasing in importance as a fibre because of its durability and strength. Seeds are a good supplement for both humans and animals.

Assessment to Clusters

There are two flax operations located at Canora and Prince Albert. The operation at Prince Albert mills flax and sells as food products whereas the operation in Canora uses flax straw to make fibre for industrial manufacturing purposes.
The operation at Canora uses up to 60,000 tonnes of straw per year. (Saskatchewan Agriculture and Food)

Towns with large areas of acres of flax based upon 1996 Census and 2000 Crop Insurance data include:

Towns with over 90,000 acres within 90 km
Davidson, Esterhazy, Humboldt, Indian Head, Melville, Moosomin, Watrous, Wynyard

Data Issues: None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

65. Pulse

Assumptions: 2001 Current Operations
Identified 128 plants across the Province

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada
Saskatchewan Pulse Growers Association

Relevancy – Application:

There has been a steady increase in the number of new large-scale pulse operations that can process over 75,000 tones per year. Most of this new growth has occurred in the province in the last 5 years.

Pulse plants either split, clean, sort or bag seeds for export. These plants either service one crop or several crop types such as peas, lentils or chickpeas.

These plants prefer to ship Identity Preserved product in containers and customers will rapidly increase this demand for food safety reasons. There are various options to ship pulse that can vary the costs of the inland freight by $20 – 40 per tonne. SAC Inc. is running a container pilot project to improve access and timely availability of containers to processors.

Assessment to Clusters

Pulse plants have traditionally located close to areas of production. However, with changes in rail grain transportation, intermodal and container logistics impact the costs between options. These costs can vary up to $20 –30 between mode selections. Thus location and proximity to main rail line service and intermodal services are a distinct advantage to processors.

Towns with processors include:
Kindersley, Rosetown, Indian Head, Assiniboia, Unity, Battleford, Melfort, Tisdale, Wynyard, Humboldt, Shellbrook, Nipawin

Data Issues : None

Contact and Date of Data
Ray McVicar
Saskatchewan Agriculture and Food, Regina
306.787.4665 September 2001

66. Federally Inspected Meat Pork Processing

Assumptions: 2001 Current Operations
There are 3 Federally Inspected plants in the Province

Data Sources: Agriculture & Agri-Food Canada
Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada

Relevancy – Application:

The plants that are federally inspected can export pork products to other provinces and internationally.

Assessment to Clusters

Federally inspected pork plants are located in the following larger urban centres include Saskatoon, Moose Jaw and Yorkton.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

67. Federally Inspected Beef Processing Plants

Assumptions: 2001 Current Operations
There are two plants are located in the Province

Data Sources: Saskatchewan Agriculture and Food
Scotts Directory, Industry Canada

Relevancy – Application:

Saskatchewan processes a small percentage of its beef production and exports live cattle to feedlots outside of the province and to the United States. Plants that are federally inspected can ship processed beef to other provinces and internationally.

Assessment to Clusters

There are two federally inspected plants located at Prince Albert and Moose Jaw.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

68. Ethanol

Assumptions: 2001 Based Upon Current Locations

Data Sources: Industry Canada, Internet

Relevancy – Application:

The location of Ethanol plants requires access to consistent and quality feedstock, utilities, and transportation. Also the proximity to markets for secondary co-products such as feed mash or pellets or other ancillary enterprises such as CO2, plastics, etc. will assist the economic viability of the plant. Thus potential users such as feedlots and larger livestock production areas should be within trucking distances of the plant. Furthermore the outbound ethanol may use both rail and truck modes of transport dependent upon the market.

Assessment to Clusters

There is one ethanol plant outside of the town of Lanigan producing 12 million litres per year. The plant is integrated with Poundmaker Agventures feedlot.
The overall costs of both inbound feed, operational and outbound costs to markets must be reviewed in order to determine the comparative advantages of other similar locations across the province.

Towns with larger access to available feedstock (cereals and pulses) within a 90 km radius based upon 2000 reported acres greater than 700,000 acres (Saskatchewan Crop Insurance 2000 data) include:

Battleford, Biggar, Davidson, Humboldt, Unity, Watrous

Towns serviced by two rail companies include Biggar, Rosetown and Unity. Towns in close proximity to feedlots include Biggar, Indian Head, Maple Creek, Meadow Lake, Melfort, Melville, Moosomin, Rosetown, and Shaunavon.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532

69. Alfalfa Pellet and Cube Plants

Assumptions: 2001 Current Operations

Identified 6 processing plants across the Province

Data Sources: Saskatchewan AG and Food

Relevancy – Application:

Alfalfa pellet plants primary export their products.

Locations exporting in bulk require rail access.
Plants are presently concentrated in the Northeast area of Saskatchewan.

Alfalfa pellets were included in the Crow rate prior to 1995 and now must pay the full transportation costs to export.

Assessment to Clusters

Towns with plants include:

Melfort, Tisdale, Hudson Bay and Outlook.

Data Issues

None

Contact and Date of Data

Michel Tremblay
Saskatchewan Agriculture and Food
Regina
306.787.5140

70. Timothy Hay

Assumptions: 2001 Current Operations
Identified 2 processing plants across the Province

Data Sources: Saskatchewan Agriculture and Food

Relevancy – Application:

Timothy Hay plants provide opportunities to capture export markets in Asia. The product is used as feed in their dairy industry especially in countries like Japan and Korea.

Locations may require both rail access and primary road systems to export full container loads of hay.

Total acres in Saskatchewan in 2001 were 12,000 and are increasing. Acres are most prevalent in Northeast and east central Saskatchewan.

Some of the production in the province is transported to Manitoba and Alberta for processing before exported. Also product is exported to the US for Horses.

Assessment to Clusters

Towns with processing plants include:

Broderick and Moose Jaw

Data Issues

Data was not available regarding the size of production.

Contact and Date of Data
Michel Tremblay
Saskatchewan Agriculture and Food
Regina
306.787.5140

71. BioIndustrial

Assumptions: 2001 Current Operations
Identified 2 plants across the Province

Data Sources: Saskatchewan Agriculture and Food
Bio Products Canada

Relevancy – Application:

Bio-based economies are becoming new approaches to production of industrial products, such as plastic, fuel, medical products. This is a rapidly emerging market for agriculture systems as a complement to food production.

Canada has the second largest industrial biotechnology community in the world.

Applications include biodiesel fuels, molecular farming (vaccines) and plastic-oil compounds. SAC Inc. has produced a paper on Bio-Products Industry. This does not include fiberboard plants.

Assessment to Clusters

The locations of plants are in Saskatoon and one new development is presently being considered in Foam Lake.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.9551532
October 2001

72. Nutraceutical

Assumptions: 2001 Current Operations
Identified 27 processing plants across the Province

Data Sources: Saskatchewan Nutraceutical Network
Agriculture and Agri-Food Canada

Relevancy – Application:

It is estimated that there are about 50 nutraceutical companies in Saskatchewan, focusing on herbs/botanicals (70%) and specialty oils (25%). Other types of products include animal products, oil and elk velvet. (Saskatchewan Nutraceutical Network 2001)

Most of these companies conduct multiple activities from Research & Development to processing and manufacturing. Most plants are located in Saskatoon.

Assessment to Clusters

There were only two companies operating in the town locations of Unity and Kamsack.
Other locations include Asquith(near Saskatoon) and Velvet Independent Processing in Wilkie (close to Unity) .

Data Issues

Some of these companies are classified as food processing and are to classify by end product groups associated to nutraceutical processing.

Contact and Date of Data

Kelley Fitzpatrick
Saskatchewan Nutraceutical Network
Saskatoon, SK
306.652.2783
October 2001

MANUFACTURING FOOD PROCESSORS

73. Total Food Manufacturers

Assumptions: Scotts Directory 2000 Manufacturers
Identified 227 plants across the Province in 149 communities.

Data Sources: Scotts Directory 2000, Saskatchewan Food Processors Association

Relevancy – Application:

Food processing was classes in the following segments of Meat, Fruit & Vegetable, Dairy, Flour, Bakery and Other.
There are 84 Meat processing sector which includes both the federal inspected plants to the smaller local butcher operations.
Meat represents 37 % of all companies.
The Fruit & Vegetable sector represents 15 % or 35 companies.
The Flour and bakery segment represents 89 companies or 39 % of all firms. Other Food processors represent 7 % or 17 firms.

Towns with more than the one food processor sector would attract more opportunities to locate new plants due to having support services being in place.

Assessment to Clusters

The towns with greater than two food processing sectors include Meadow Lake, Nipawin, Melfort, Maple Creek, Kamsack, Wadena, Nipawin, Melville.

Data Issues

Some town Locations may have a bakery that is part of the local food/ grocery store. Thus all bakeries may not been shown.
Use Scotts Directory 2000 to be able to compare to Manitoba and Alberta using the same source references.

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

74. Meat Food Processors

Assumptions: 2000 Scotts Directory
Identified 37 plants across the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:

There are 84 Meat processing sector which includes both the federal inspected plants to the smaller local butcher operations. Meat represents 40 % of all companies.

With increasing livestock production smaller meat processors may develop in towns with existing operations or in towns where the surrounding area Livestock population is increasing.

Assessment to Clusters

Towns with Food Meat processing plants include Kindersley, Battleford, Wadena, Canora, Melville, Watrous, and Maple Creek.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

75. Fruit and Vegetable

Assumptions: 2000 Scotts Directory
Identified 35 plants across the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:

There are 35 plants representing 15 % of all food-processing plants in the province.

Fruit and Vegetable processing is concentrated in Saskatoon however some smaller operations have located outside of Saskatoon.

Assessment to Clusters

Towns with existing plants include Battleford, Wynyard, Outlook, Rosetown, and Assiniboia.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

76. Dairy

Assumptions: 2001 Current Operations
There are two plants in the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:
The plants are located in Saskatoon and Yorkton.

Assessment to Clusters

Dairy operations are located in higher populations to support resulting output for milk and other dairy related products such as cheese.

Data Issues

None

Contact and Date of Data
Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

77. Flour

Assumptions: 2000 Current Operations
Identified 43 plants across the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:

Most flour operations are centred in the larger urban areas of Saskatoon and Regina.

There is a cluster of plants located in the Nipawin region.

Assessment to Clusters

The following towns have Flour based processing:
Tisdale, Humboldt, Hudson Bay

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

78. Bakery

Assumptions: 2001 Current Operations

Identified 46 plants across the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:

Most Bakery operations are centred in the larger urban areas of Saskatoon and Regina.

Assessment to Clusters

The following towns have Bakeries:
Meadow Lake, Nipawin, Melfort, Tisdale, Wadena, Humboldt, Foam Lake, Esterhazy, Indian Head, Outlook

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

79. Other Food Processors

Assumptions: 2001 Current Operations

Identified 17 plants across the Province

Data Sources: Scotts Directory 2000

Relevancy – Application:

The majority of other food operations are centred in the larger urban areas of Saskatoon and Regina.

Assessment to Clusters

There are several plants located outside the larger centres in Biggar, Melville, Kindersley and Tisdale.

Data Issues

None

Contact and Date of Data

Dave Spearin
LMS
Saskatoon, SK
306.955.1532
October 2001

URBAN STRUCTURE

80. Population

Assumptions: 1999 Municipal Population

Data Sources: Economic Development 1999
1999 Municipal Directory

Relevancy – Application:

The larger the community the greater amount of services offered. Also there is more availability of manpower in larger communities.

Assessment to Clusters

Towns with populations of 3-6,000 include:
Meadow Lake, Battleford, Kindersley, Humboldt, Melfort, Nipawin, Melville, Nipawin,

Towns with populations between 1,500 and 3,000 include:
Unity, Biggar, Rosetown, Outlook, Watrous, Kamsack, Esterhazy, Maple Creek, Shaunavon, Assiniboia, Indian Head, Moosomin

Towns with populations with less than 1,500:
Big River, Spiritwood, Shellbrook, Wadena, Davidson, Foam Lake,

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.532
September 2001

81. Stabler Olfert Index

Assumptions: Stabler-Olfert 1995 Urban Hierarchy Class of Saskatchewan

Data Sources:

The Changing Role of Rural Communities in an Urbanizing World
J.C. Stabler, M.R. Olfert
Canadian Plains Research Center
University of Regina, 1996

Relevancy – Application:

The natural growth of towns and cities to provide goods and service is determined by the level of threshold to sustain economic viability. Towns and cities decline due to changes in consumer patterns for goods and services. Stabler ranked towns across Saskatchewan based upon the level of retail services offered by communities as a Hierarchy. They classed towns to 6 types from Primary Wholesale, Secondary Wholesale, Complete Shopping, Partial Shopping, Full Convenience and Minimum Convenience. Towns offering Convenience services are at the lower end of the scale as compared to Wholesale class, which is at the top of the Hierarchy. Saskatoon and Regina are the only two full Wholesale centers in the province.
The hierarchy used is based upon the number and types of consumer retail and some farm services.

Assessment to Clusters

The 30 towns that we compared are range between Complete Shopping to Partial Convenience.
The towns in Complete Class include: Humboldt, Kindersley, Meadow Lake, Melfort, Melville, Nipawin, and Tisdale.

Towns that were Partial include Assiniboia, Battleford, Big River, Canora, Davidson, Esterhazy, Foam Lake, Hudson Bay, Indian Head, Kamsack, Moosomin, Outlook, Rosetown, Shaunavon, Shellbrook, Spiritwood, Unity, Wadena, Watrous, and Wynyard.

Data Issues None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.955.1532
September 2001

82. Hutterite Colonies

Assumptions: Used Saskatchewan Atlas 2000

Data Sources: Saskatchewan Atlas 2000

Relevancy – Application:

Hutterite colonies are located around the province. There were 54 identified.
Most of Hutterite colonies are in the Southwest area of the province. Colonies are farm based and demand services for feed, fuel, fertilizers and equipment.

Assessment to Clusters

Towns situated in close proximity to colonies include Maple Creek, Shaunavon, Kindersley, Rosetown, Tisdale, Biggar.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
LMS
Saskatoon, SK
306.9551532
September 2001

83. Treaty Land Entitlement

Assumptions:

Compared FSIN data regarding Reserve Acres to Shortfall in Land Treaty Area

Data Sources: FSIN

Relevancy – Application:

New Treaty Entitlement Land will increase acres to the First Nation's Agriculture Land Base. There is 1 million acres that is under review.

The Federation of Saskatchewan First Nations is presently evaluating their agriculture capability for future land base development opportunities.

Assessment to Clusters

Towns situated in close in proximity to reserves that will be receiving additional acres include Esterhazy, Indian Head, Battleford and Meadow Lake.

Data Issues

None

Contact and Date of Data

Ryan Pewapisconias
Cowessess First Nation
Cowessess, SK
306.696.3121
September 2001

84. Ethnic

Assumptions:

Evaluated Saskatchewan Atlas and recreated the Map using the Town as compared to RM or larger land blocks

Data Sources: Saskatchewan Atlas 2000

Relevancy – Application:

Saskatchewan has a strong history of increased Immigration in areas of rural development from the 1860's to the early1900's.

The attraction of new immigrants to rural will be settled from similar or past countries with historical ties.

Assessment to Clusters

Towns with Ethnic block settlements would continue may attract immigrants from similar country areas.

Data Issues

None

Contact and Date of Data

Ryan Tondevold
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306.955.1532

AG INVESTMENT

We collected information pertaining to Agricultural investment since 1996. This information was developed into a database showing the types, location and amount invested for agriculture. From this database we mapped the investment amount by town and agricultural sector. This allows us to compare the current investment activities across the province. We are identifying any trends in the investment by type and by geographic regions.

Data sources include:
SOCO, CIC, Saskatchewan Economic Development, Western Producer, Individual company annual reports, Saskatchewan Business, SREDA, CARDS

85. Investment by AG Sector, Livestock, Grain, Research

Assumptions: Information from 1996 to 2000
Venture Capital Information not Shown,

Relevancy – Application:

Livestock investment shows hog farms or feedlots and processing. Feed Mill information is shown where announced

Grain maps show investments classed by Canola, Fibre, Flax, Grains (Wheat, Oat), Organic, Other Food (Potatoes & Poultry) Pulse

Assessment to Clusters

Majority of New Investment has been associated with Hog Farms and processing.

Towns with recent Hog Investments from 1996 to 2000:
Maple Creek, Unity, Biggar, Humboldt, Watrous, Canora, Tisdale
The majority of investments were north of Highway 16 in the Northeastern region of the province. Most Hog Investments were less than $25 million for farms. The largest investment was for processing in Saskatoon.

Towns close to Investments to Beef Feedlots between Indian Head to Moosomin

Feed Mill investments at Battleford

Investment in Grains were dominated by two classes:
Canola at Clavet and Other (potatoes)

Towns where Grain Based investments occurred for Value added

Battleford, Wynyard, Humboldt, Melfort, Foam Lake, Indian Head, Canora, Melville

Some of the larger investments were situated at larger urban centres of Weyburn, Saskatoon, Swift Current (proposal Durum)

Data Issues

Not all investment data is shown due to private company non-disclosures. Some data was reported as a project but never materialized. Some of the information that was provided by SED was in this category.

Other assumptions regarding Pulses need to be clarified since information on new developments was limited. These need to be redone to evaluate the impact of new Pulse cleaning operations.

Contact and Date of Data

Dave Spearin
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Saskatoon, SK
306.955.1532

86. Investment by Year by Location

We quantified investment by year by location across the province for the period 1996 -2000.

1998 appears to be the most active year.

Total investments since 1996 are more numerous in the area between the towns Canora, Foam Lake, Humboldt, Wadena, Melfort, Tisdale

VALUE CHAIN ASSESSMENT

We illustrated the value chains for each sector using GIS systems. The following describes the data layer assumptions, sources and elements to the study for the various agricultural value chains. The value chain represents the stages of producing a good from raw material to finished consumer goods. Different levels or stages of processing are prevalent in the province. The Value Chain considers both inputs and outputs of production.

Examples of Value Chains are shown below:

Grain Value Chain

Seed growers, chemical, fertilizer, Biotech R& D

Farmers

Food Processors – Primary to Secondary Manufacturing

Distributors – export – domestic

Retail and Foodservice

Consumer

Livestock Value Chain

Stock suppliers, Feed Manufacturers, Biotech R& D

Farmers

Food Processors – Primary to Secondary Manufacturing

Distributors – export – domestic

Retail and Foodservice

Consumer

Value chains compete against each other as companies produce goods and services. In the context of Saskatchewan, certain value chains have been developed. We cannot always benefit from producing finished goods to be transported to markets because of distance and costs. Value Chains are created as companies integrate their services in the production of materials from raw materials into processed goods using vertical and horizontal integration. The end result is a consumer product. There are increasing public pressures to track the production chain for Ag products from the producer to the manufacturer to the distributor. Agriculture value chains found in

Saskatchewan and Western Canada are centered on cereals, oilseeds and livestock. Agriculture based manufacturers are either domestic or internationally based. They can be also generated by Cooperatives.

Using GIS we can illustrate the different Ag value chains in Saskatchewan and Western Canada. The following maps illustrate the different forward linkages of value chains for grains, oilseeds and livestock. We have combined the map layers to illustrate how Value Chains can be identified using GIS.

These value chain maps are shown at a macro level and provide a comparison between the export based shipments and the domestic processing of grains, oilseeds and livestock. The majority of commodities are exported, even if they have been further processed or manufactured in Saskatchewan and Western Canada. Also the maps show the density of grain production by RM based upon the 1996 Census of Agriculture.

We did not illustrate the backward or services related linkages on these maps. Backward linkages are support services to the Ag sector. These include: fertilizer, agronomists, chemicals, agricultural implement, trucking, warehousing, financial and veterinary or genomic research. If we tried to combine all of the services on one map there would be too much information and the map would lose its interpretation.

The grains-oilseed maps identify seed growers, production density areas, processors' demand, and the volume that was exported through the key grain collection system for the latest crop year of 1999-2000. These maps provide an evaluation of spatial components of value chains in Saskatchewan.

The livestock maps show the relative density of livestock farms to feed mills to collection systems.

87. Cereal Wheat

Assumptions: 2001 Listing Combining Growers, Elevators, and Processors

Data Sources: AAFC, Seed Growers Assoc, Saskatchewan Ag and Food
Industry Canada, Sask Food Processors Assoc, Scott's Industrial Directory 2000, Saskatchewan Trade Export Partnership
Canadian Grain Commission

Relevancy – Application:

Processing of cereal grains is done in Saskatchewan but in comparison to other locations in Western Canada operations in Saskatchewan are smaller.

There are four wheat-durum processing locations in Saskatchewan with a combined capacity of 177,000 tonnes of grains milled per year.

The shipping of specific IP grains is through the Canadian Wheat Board to customers in other countries. These grains are sourced through variety specific delivery programs.

Assessment to Clusters

The larger flourmills are located in Saskatoon. There is one smaller facility located in Humboldt.

Growers are distributed across the Province.

The volume of grain attracted to the export collection systems is seen by the proportion circles representing the volume of grain delivered by producers to elevators located in a town. Key collection points include: Unity, Kindersley, Moose Jaw, Weyburn, Saskatoon, Melfort, Tisdale, Amazon, Yorkton, Canora, Davidson and Swift Current.

Data Issues

None

Contact and Date of Data
LMS
Dave Spearin
Saskatoon, SK
306.955.1532, October 2001

88. Cereal Durum

Assumptions: 2001 Listing Combining Growers, Elevators, and Processors

Data Sources: AAFC, Seed Growers Assoc, Saskatchewan Ag and Food
Industry Canada, Sask Food Processors Assoc, Scott's Industrial Directory 2000, Saskatchewan Trade Export Partnership
Canadian Grain Commission

Relevancy – Application:

Durum is dominantly exported. Processing of cereal grains occurs in Saskatchewan but in comparison to other locations in Western Canada the operations in Saskatchewan are smaller.

There is one wheat-durum Processing location in Saskatchewan with a combined capacity of 30,000 tonnes of grains milled per year.

There have been numerous proposals to develop a durum mill but under current economics it is more feasible to locate a plant in close proximity to the market.

Assessment to Clusters

There is one-durum mills located in Saskatoon.

Growers are located in the southern half of the Province.

The volume of grain attracted to the export collection systems is seen by the proportion circles representing the volume of grain delivered by producers to elevators located in a town. Key collection points include: Moose Jaw, Swift Current, Gull Lake, Weyburn, and Kindersley

Data Issues

None

Contact and Date of Data
LMS
Dave Spearin
Saskatoon, SK
306.955.1532, October 2001

89. Cereal Oats

Assumptions: 2001 Listing Combining Growers, Elevators, and Processors

Data Sources: AAFC, Seed Growers Assoc, Saskatchewan Ag and Food
Industry Canada, Sask Food Processors Assoc, Scott's Industrial Directory 2000, Saskatchewan Trade Export Partnership
Canadian Grain Commission

Relevancy – Application:

Prior to 1996 more oats were grown in the northwest and in Alberta. Since then production has shifted towards Manitoba and Northeastern Saskatchewan. The export of oats to the United States has grown steadily since the 1990's. Quaker Oats is the largest importer of Canadian Oats and purchase to specifications rather than grades. Thus there is a large export movement of oats and this can be seen in the relatively few grain collection towns showing larger volumes. Oats are used for both human food and feed for horses.

There are several oat processors in Saskatchewan with total capacity of 233,000 tones per year, located at Dalmeny, Saskatoon and Yorkton. The highest concentration of oat seed growers is in the Northeast. The key collection points include Wadena, Yorkton and Canora.

Assessment to Clusters

Oats are grown in relation to locations of processors and collection areas.

Elevators in towns, which are supporting oat exports, include Wadena, Canora, and Yorkton.

Data Issues

None

Contact and Date of Data

LMS
Dave Spearin
Saskatoon, SK
306.955.1532, October 2001

90. Oilseed Canola

Assumptions: 2001 Listing Combining Growers, Elevators, and Processors

Data Sources: AAFC, Seed Growers Assoc, Saskatchewan Ag and Food
Industry Canada, Sask Food Processors Assoc, Scott's Industrial Directory 2000, Saskatchewan Trade Export Partnership
Canadian Grain Commission

Relevancy – Application:

Production densities are higher in the RM's that have a processor sites.

There are five canola processors in Saskatchewan with total capacity of 1.295 million tones per year.

Processors are located at Nipawin, Lloydminister and Clavet.

Canola seed growers are located in the Northern half of the grain belt.

The key export collection points include Saskatoon, Unity, Tisdale and Yorkton.

Assessment to Clusters

Towns with processors include Nipawin and Lloydminster.

The relative draw area for each processing plant is shown. The draw area was calculated by assessing the production to the grain delivered for export in each crop district less than demand at each plant.

Data Issues

None

Contact and Date of Data

LMS
Dave Spearin
Saskatoon, SK
306.955.1532, October 2001

91. Oilseed Flax

Assumptions: 2001 Listing Combining Growers, Elevators, and Processors

Data Sources: AAFC, Seed Growers Assoc, Saskatchewan Ag and Food Industry Canada, Sask Food Processors Assoc, Scott's Industrial Directory 2000, Saskatchewan Trade Export Partnership Canadian Grain Commission

Relevancy – Application:

Key growing areas are in pockets across the eastern and northern grain regions.

There are two processors in Saskatchewan with total capacity of 100,000 tones per year located at Prince Albert and Canora

Flax growers are located throughout the Province.

The key collection points include Saskatoon,

Assessment to Clusters

Data Issues

None

Contact and Date of Data

LMS
Dave Spearin
Saskatoon, SK
306.955.1532, October 2001

92. Livestock Beef

Assumptions:

1996 Cattle Census, Pasture Lands, Feed mills, Feedlots, Auction Marts and Meat Processors

Data Sources: Saskatchewan Agriculture and Food,
Agriculture & Agri-Food Canada, AAFC
Scott's Directory 2001, CanFax, PFRA,

Relevancy – Application:

This map illustrates the parts of the beef value chain by comparing the relative locations of Pasture Land, Feedlots to Auction marts to the base 1996 RM census information pertaining to the total number of cattle and cattle farms in the province. The map shows the relative positioning of farms to pasture lands to where the greatest population of cattle. The map also shows the relative position of feedlots to feed mills and to cattle processors located in the province. Thus if towns have more than one associated activity then they are improving their viability by having Value Chain related activities.

Assessment to Clusters

There is one processor in the province for Beef located at Moose Jaw.
The southwest areas of the province had the highest population of cattle at Maple Creek. Other communities in close proximity to larger concentrations of cattle include Spiritwood, Shaunavon and Meadow Lake.

Towns with Feedlots and Feed mills include:
Melfort, Moosomin

Towns with Feedlots and Auction Marts include:
Shaunavon, Battleford, Melfort

Towns with Feedlot – Feed mill and Auction Mart
Swift Current,

Towns with single items were covered in the AG services section and will not be reviewed.

Data Issues :None

Contact and Date of Data

Dave Spearin
LMS, Saskatoon, SK, 306.955.1532

93. Livestock Hogs

Assumptions: Illustrate locations of Barns to Feed Mills to Assembly Yards

Data Sources: Saskatchewan AG and Food, SPI, Sask Pork,
Agriculture & Agri-Food Canada AAFC

Relevancy – Application:

This map compares the locations of new ILO hog operations to the RM 1996 Census data re population to the locations of Feed mills and Assembly Plants. There are some feed mills located at the newer Hog ILO operations and these are not known. Further development of Hog sector requires increased Assembly yards and feed mills in regions that are not presently situated. Towns that offer more than one activity in the supply value chain will enhance their viability.

Assessment to Clusters

The largest concentration of Hogs is in the Humboldt area and north of Saskatoon.

Towns with feed mills and assembly yards include Humboldt, Tisdale, North Battleford, Swift Current, and Regina.

Future growth areas include the southeast and northeast. In order to facilitate growth to these areas they would require further integration of services for feed and transportation.

Other site-specific issues pertaining to water availability, proximity to barley acres for manure and access to transportation services need to be considered in the planning of any new development site.

Data Issues: Newer Barns have integrated feed mills located at the site.

Contact and Date of Maps

Dave Spearin
LMS
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306.955.1532

Distribution Density to Processors Maps

After one of the advisor meetings it was suggested that we incorporate the production density to processor maps for Beef and Hogs using information provided by PFRA. These maps compare the relative density of production expressed as a percentage to the distance to processing sites. The maps use the 1996 Agriculture Census (For production data), Soil Landscape Polygons (PFRA) and the most current list of processors from Agriculture and Agri Food Canada.

There were 5 maps completed for the study, two maps for Livestock and three for Grains. The PFRA provided two map images for Beef and Hogs. Logistic Marketing Services created similar maps using the PFRA basis polygons for Wheat, Oats and Canola and using the same assessment.
The maps illustrate the proximity of production to processors.
For Hogs 75 % of production is within 134 km of processors.
For Beef 75% of production is within 140 km of processors.
For Wheat 75% of production is within 166 km of processors.
For Oats 75% of production is within 200 km of processors.
For Canola 75 % of production is within 166 km of processors.

Distances to processors for Hogs and Beef have similar distances.

Wheat and Canola were the same and Oats had the largest distance to processing to capture 75% of production from where it is produced.
The five maps are used as illustrative purposes to show which processors have the greatest density of production located in close proximity to its sites across Western Canada.

Saskatchewan Value Chain Position in Western Canada

The study also evaluated Saskatchewan's development in the context of servicing a larger market base of western Canada. Because of Saskatchewan's lack of population we cannot sustain certain activities related to the further processing of agricultural products produced in the Province. We did not incorporate the size of production at this time due to data constraints.

We compared the food-processing sector and the Hog and Beef value chains in western Canada.

Food Processing

The 2000 Scotts Directory was used to identify the number of companies in each Food Processing Sector. We then mapped all locations to determine if there were cluster developments of locations across each province or within provinces. The Food processing Sectors included Meat, Fruit and Vegetable, Flour, Bakery and Other Foods The purpose is to evaluate the spatial aspects of the number of sectors in towns and to see if there are any geographic associations with the number of companies in the provinces in terms of distance or location to the larger urban centres of Calgary, Edmonton and Winnipeg. Companies were not classified according to production or markets served and comparative or competitive market advantages due to economic and transportation conditions were not evaluated as this is outside the scope of the study.

94. Food Processing All

Assumptions: Listing of Food Processors classed by Sector
Sectors include Meat, Fruit-Vegetable, Dairy, Flour, Bakery and Other

Data Sources: Scotts Directory 2000

Relevancy – Application:

The largest concentration of Food Processors is found in the larger urban areas as expected. Lethbridge, Calgary, Edmonton, Saskatoon and Winnipeg have companies in all six sectors.

The circles represent the proportionate mix of companies by sector and indicate which sector is stronger in any city, town or area.

When an area has stronger a showing of one-sector groupings then that area is either stronger due to production, proximity to markets, or access to services. Saskatoon has a larger proportion of Flour processing whereas Calgary has larger Bakery establishments. Edmonton has a larger share of Meat and Fruit and Vegetable processing than the other cities. Winnipeg has very similar proportion of all sectors with the exception of Dairy.

The majority of smaller towns have only one Food processing sector located in the town represented by either a Bakery or Meat processor.

There are very few towns with more than 3-4 sectors across western Canada. In Alberta and Manitoba the towns with 3-4 sectors are situated in close proximity to both Edmonton and Winnipeg.

The following towns and cities had more than four sectors: (we did not compare the larger cities in each province)

Alberta :	Red Deer, Lethbridge, Medicine Hat, Camrose
Saskatchewan:	Tisdale, Swift Current
Manitoba:	Winkler, Steinbach, Portage la Prairie

The majority of towns in Saskatchewan have either one or two sectors associated with Meat and Bakery. The region between Saskatoon to

Prince Albert, Tisdale, and Yorkton has more Meat processing sites than the Southeast region or Northeast.

The area in Southern Manitoba around Winkler has more Flour- Bakery site groupings.

Saskatchewan in Context to Western Canada

Sector	Alberta	Saskatchewan	Manitoba	Total
Meat	86	84	56	226
Fruit-Vegetable	69	35	32	136
Dairy	19	2	16	37
Flour	69	43	51	163
Bakery	62	46	42	150
Other	42	17	22	81
Total	347	227	219	793

Saskatchewan Meat processing sector has a similar number of firms with Alberta however the scale is much smaller. The majority of operations in Saskatchewan are local meat operations.

Saskatchewan has a similar number of firms as Manitoba in the Fruit and Vegetable processing. However the size and mix of operations may vary between the two provinces.

Saskatchewan's Flour and Bakery sectors appear to be more in number that the other provinces in relative terms to its population. This may be associated to Saskatchewan's larger cereal crop production base.

Livestock Value Chains Western Canada

95. Cattle Value Chain Western Canada

Assumptions:

Illustrate locations of Pastures to Feed Lots to Feed Mills to Auction Marts to Federally Inspected Processors, 1996 RM Census for total Cattle and Farms, Growth in Cattle by Province

Data Sources: Saskatchewan AG and Food, Agriculture & Agri-Food Canada AAFC, Manitoba Agriculture, Alberta Agriculture Listing of Food Processors classed by Sector

Relevancy – Application:

The map compares location of Feedlots, to Auction marts to the base 1996 RM census information pertaining to the total number of cattle in each RM and the total cattle found in the province from 1994 to 1999.

Saskatchewan in Context to Western Canada

Saskatchewan total Cattle population has remained constant from 1995 to 1999 ranging between 2.8 to 2.7 million cattle.[2]
Saskatchewan's feedlot industry has been concentrating in the southern half of the province west of Moose Jaw.
There is only one processor in the province at Moose Jaw.
Alberta has more processing plants in number and in size than Saskatchewan, not all plants are shown.

Saskatchewan is net exporter of live cattle from the province to Alberta and United States.

96. Hog Value Chain Western Canada

Assumptions:

Illustrate locations of Barns to Feed Mills to Assembly Yards to Federally Inspected Processors

Data Sources: Saskatchewan AG and Food, SPI, Sask Pork, Agriculture & Agri-Food Canada AAFC

[2] Saskatchewan AG & Food, StatFacts, 2001

Saskatchewan Economic Development, Manitoba Agriculture, Alberta Agriculture

Relevancy – Application:

This map looks at the locations of new ILO hog operations compared to the RM 1996 Census data re population to the locations of Feed mills and Assembly Plants.
There are some feed mills located at the newer hog ILO operations and these are not known.

Further development of hog sector requires increased assembly yards and feed mills in regions that are not presently situated.

Saskatchewan in Context to Western Canada

There are 5.4 million hogs slaughtered annually in Western Canada. Both the processing and hog production sectors have rapidly increased over the last five years.

Saskatchewan is a net exporter of live hogs to Alberta, Manitoba and the United States. The majority of hogs produced in the province are processed in the province.
In 1998 Saskatchewan producers shipped 1.26 million hogs, with 900,000 destined to processors in Saskatchewan and 360,000 exported live.[3]

Saskatchewan can easily triple its pork industry to service both internal processors capacity as well as service Manitoba's industry at Brandon. There appears to be a comparative advantage for new locations to develop and service this region from the Southeastern part of the Province.

Location of newer Hog Barns in Manitoba and Alberta were not as readily available as Saskatchewan's information. Processing capacity and utilization production rates are not readily available.

[3] Sask Ag and Food

Ethanol

97. Ethanol Chain Western Canada

Assumptions:

Illustrate current locations of Ethanol plants; also show markets for co-products such as mash to feedlots or food processors.

Data Sources: Scotts Directory 2000, Saskatchewan AG and Food

Saskatchewan Context in Western Canada

The size of production and the distribution systems for retailers selling ethanol is illustrated on the map for locations across Western Canada.

If the industry is to expand to the domestic market across Saskatchewan then the province requires more retail distribution.

There are other issues in the assessment of the Ethanol sector in Western Canada and these are beyond the scope of this study.

Saskatchewan Agro Forestry Site Assessment

98. Agro –Forestry Prospects for Development (2 maps)

Assumptions:

Soils showing hybrid poplar suitability, Locations of other Forestry Manufacturing, Road Networks

Data Sources: Scotts Directory 2000, University of Saskatchewan,

Assessment:

The Gray Luvisolic and Mesisol soil groups represented by Grey and pink have the highest suitability for Hybrid Popular development.

Towns in the region include Meadow Lake, Big River, Spiritwood, Shellbrook, Melfort, Tisdale, Nipawin, and Hudson Bay

The road network servicing Spiritwood, Shellbrook and Big River would require upgrading to Major Arterial and removal of weight restrictions in order to facilitate or encourage any new agro-forestry development to these towns.

The second map compares the soil zones against availability of land use across the same region using 1996 AG census information. The land use compares the relative proportion of areas in the RM by Crops, Tame pasture and Natural pasture. Certain RM's could switch Cropland to the development of Hybrid Popular farms.

The above two maps are for illustrative purposes on how GIS systems can be used to evaluate the potential for future agriculture development and comparing different factors which would influence the success of developments.

GIS systems can provide a basis to compare regions across the Prairies for value added agriculture development. However the economic, environmental and social factors must all be considered before any project is completed or feasible.