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Vulcan County has been a force in the agricultural community since the first sod was broken in the early 19th century. To this day agriculture plays a huge role in the everyday lives of Vulcan County residents.

Vulcan County covers a large amount of land, with generally high quality soils. These soils allow for large cereal grain production potential. The oil and gas industry is also a significant contributor to the Vulcan County economy.

Vulcan County has a long agricultural history. The future will depend on the ability of producers to change along with an ever changing world.

This publication provides a profile of agriculture in the Vulcan County today and the opportunities for the future.

Agricultural Profile Development

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Vulcan County is located in south-central Alberta, southeast of the City of Calgary. The Town of Vulcan is 120 km south of Calgary and 100 km north of Lethbridge.

Vulcan County covers an area of 1,351,073 acres with 1,019,720 acres improved and 331,280 acres unimproved. There are approximately 1050 farms and 10 Hutterian Brethrens located within its boundaries.



Figure 1. Vulcan County in relation to Southern Alberta and Canada Source: Vulcan County, 2004

At present there are currently 3,778 people residing within Vulcan County. Vulcan County encompasses the Town of Vulcan (1,667), the Villages of Arrowwood (195), Milo (117), Lomond (170), Champion (384), and Carmangay (258). The Hamlets of Mossleigh, Ensign, Brant, Queenstown, Travers, Herronton, Shouldice, and Kirkaldy are also located within the county. Vulcan County is considered one of the larger counties within Alberta and because of its size there are over 1,790 miles of road throughout the county. There is also 50 miles of irrigation canal, 112 miles of riverbanks, 91 miles of lakeshore, and 102 miles of rail right-of-way.



Homesteaders began to settle the area of the now Vulcan County in the early part of the 20<sup>th</sup> century. Farmers from Eastern Canada, immigrants from Britain and Western Europe, and many from the central United States came to seek land in the west. The depression of the dirty thirties presented many obstacles to residents of the county. Drought, severe winds, and low markets were just a few of the crises dealt with. The 1940's were prosperous. Crops improved, the livestock industry was buoyant, and farmers were getting out of debt.



Dust Storm, Vulcan 1920 Vulcan County has a history of overcoming agricultural obstacles. Source: Wheat Country, A History of Vulcan and District. Vulcan Historical Society. 1973. p 250

During the early years, the area was divided into small municipal districts. In 1950 the Alberta Legislature passed an "Act to provide for the Establishment of local Government Units to be known as Counties". In December, 1950, the County of Vulcan No. 2 was officially formed. Though Vulcan was the first county to form in Alberta, they did not receive the number "one" as the Grand Prairie School Division was promised this number. The county was divided into nine electoral divisions, and 9 councilors were sworn into office March 8, 1951. The County of Vulcan No. 2 became Vulcan County in 1999.



As of 2001, Vulcan County had a population density of 0.7 people per square kilometer with a total population of 3,780.

### Age

The median age of the population is 36.6, with 75.3% of the population over the age of 15.

and evening population	,=====		
Age	Total	Male	Female
Total- All persons	3,780	1,935	1,840
Age 0-4	285	130	150
Age 5-14	650	335	315
Age 15-19	305	155	150
Age 20-24	205	105	105
Age 25-44	945	475	480
Age 45-54	575	300	275
Age 55-64	385	205	185
Age 65-74	260	140	120
Age 75-84	130	75	60
Age 85 and over	30	15	15

# Table 1. Age characteristics of theVulcan County population, 2001.

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337

As of 2001 there were 940 families in the county, 88% of those being married couple families with an average of 3.2 people per family, 6% being common-law couple families with an average of 2.8 people per family, and 5% being lone-parent families with an average of 2.3 people per family.

The majority of the Vulcan County population, 93.9%, are Canadian born, with the remaining being foreign born. Three percent of the population is of Aboriginal identity. Only 0.6% of the population is of visible minority status.

Of Vulcan County Residents, 77.3% learned and still understand English, 0% French, and 22.6% first learned and still understand a different language.

# Religion

Vulcan County is host to a number of different religious organizations, the majority being of Christian variety. 9.3% of the population is Catholic, 68.3% is Protestant, 5.2% Christian with no other affiliation and 17.2% have no religious affiliation.

# Education

Historically residents have stayed or returned to farm and ranch after receiving their education, be it high school or post secondary.

As there are no post secondary education facilities in the county, young people must leave Vulcan County to attend post-secondary education. A more recent trend in the past 20 years has seen the young people who leave the county for post-secondary education not returning due to the lack of professional jobs and career opportunities, as well as the economics of farming. This could explain the decrease in the overall education of the population aged 20-34.

Education	Total	Male	Female
Total population aged 20-34	575	270	305
% of the population aged 20-34 with less than a high school graduation certificate	46.1	48.1	44.3
% of the population aged 20-34 with a high school graduation certificate and/or some postsecondary	16.5	18.5	14.8
% of the population aged 20-34 with a trades certificate or diploma	7.8	13.0	3.3
% of the population aged 20-34 with a college certificate or diploma	16.5	9.3	21.3
% of the population aged 20-34 with a university certificate, diploma or degree	13.9	13.0	16.4
Total population aged 35-44	555	265	285
% of the population aged 35-44 with less than a high school graduation certificate	32.4	35.8	29.8
% of the population aged 35-44 with a high school graduation certificate and/or some postsecondary	30.6	26.4	36.8
% of the population aged 35-44 with a trades certificate or diploma	10.8	15.1	5.3
% of the population aged 35-44 with a college certificate or diploma	10.8	13.2	7.0
% of the population aged 35-44 with a university certificate, diploma or degree	14.4	7.5	21.1
Total population aged 45-64	985	565	420
% of the population aged 45-64 with less than a high school graduation certificate	38.1	38.9	36.9
% of the population aged 45-64 with a high school graduation certificate and/or some postsecondary	24.9	29.2	17.9
% of the population aged 45-64 with a trades certificate or diploma	14.2	13.3	15.5
% of the population aged 45-64 with a college certificate or diploma	12.7	13.3	11.9
% of the population aged 45-64 with a university certificate, diploma or degree	11.2	5.3	17.9

 Table 2. Education characteristics of the Vulcan County population, 2001.

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337

# Labor & Occupation

Due to the fact that the two largest industries within the county are agriculture and the petroleum industry, the majority of occupations are agriculture or resource based. The majority of other jobs created are catering to these two industries.

As of 2002, the employment rate within Vulcan County was 74.6%.

Occupation	Total	Male	Female
Industry			
Total - Experienced labor force	2,140	1,255	885
Agriculture and other resource-based industries	1,340	910	430
Manufacturing and construction industries	155	130	25
Wholesale and retail trade	140	65	75
Finance and real estate	15	0	10
Health and education	195	10	190
Business services	110	55	50
Other services	190	90	105
Occupation			
Total - Experienced labor force	2,140	1,255	885
Management occupations	100	60	40
Business, finance and administration occupations	145	10	140
Natural and applied sciences and related occupations	30	15	10
Health occupations	75	0	75
Social science, education, government service and religion	40	0	40
Art, culture, recreation and sport	55	45	10
Sales and service occupations	225	40	190
Trades, transport and equipment operators and related occupations	215	195	20
Occupations unique to primary industry	1,235	875	355
Occupations unique to processing, manufacturing and utilities	20	20	0

 Table 3. Vulcan County labor force and occupations, 2001.

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337

#### Table 4. Income and earnings in Vulcan County.

Income and Earnings	Total	Male	Female
All persons with earnings (counts)	2,030	1,170	860
Average earnings (all persons with earnings (\$))	21,914	25,031	17,672
Worked full year, full time (counts)	1,095	725	365
Average earnings (worked full year, full time (\$))	27,838	30,672	22,148
Composition of total income (100%)	100.0		
Earnings - % of income	68.7		
Government transfers - % of income	11.6		
Other money - % of income	19.7		

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337



Due to the vast area of Vulcan County, transportation is one of the most important challenges faced each day.



**Figure 2. Transportation in Vulcan County** *Source: Vulcan County, 2004* 

With the recent discontinuance of the rail line from Herronton to Lomond, the north and eastern portions of the county have seen a dramatic increase in local road traffic. The result has been an increased need for road maintenance and services in these areas. Several of the Hamlets and Villages throughout the county have recently seen the departure of several grain elevators. This has forced many producers to transport their commodities to the Town of Vulcan and other major grain handling facilities outside the county.

The oil industry has been gradually increasing and its presence within Vulcan County is becoming more dominant. As a result the road grid throughout the county has seen a significant increasing pressure of oil maintenance vehicles and oil rig moving vehicles which have proved to be very demanding to the road structures. Road maintenance has become one of the biggest challenges that the Vulcan County is facing and the trend looks like it will continue.



Vulcan County is situated within two physiographic areas known as the Eastern Alberta Plains and the Western Alberta Plains (Figure 3). The western portion of the county is found in the Western Alberta Plains, with elevations varying from 914 to 1,173m. The eastern portion of the county is located in the Eastern Alberta Plains, with elevations varying from 792 to 960m. The Travers Reservoir and McGregor Lake provide the natural boundary between these two regions. There is an outlier of the Western Plains called the Majorville Upland which is located in the Eastern Alberta Plains.



Figure 3 - Physiographic regions within Vulcan County Source: Vulcan County 2004

# Hydrology

Vulcan County is bordered by the Bow River on the north and the Little Bow River on the west. The Little Bow River flows south into the Twin Valley Reservoir, east into Travers Reservoir and then south, where it eventually enters the Oldman River. The East and West Arrowwood Creeks flow into the Bow River in the north-west area of the county.

There are a variety of man made reservoirs in the county, including Travers Reservoir, Little Bow Reservoir, McGregor Lake Reservoir, Badger Lake Reservoir, and the newest Twin Valley Reservoir.



Source: Vulcan County, 2004

### Soils

There are three soil zones within Vulcan County, brown, dark brown, and thin black. As shown in Figure 5 (ASAC 1987) the majority of the county is the dark brown soil zone. The eastern portion of the county is mostly brown soil zone, and in the northwest corner of the county, there are several small pockets of the thin black zone.



**Figure 5. Agroclimatic and soil zones within Vulcan County** *Source: ASAC 1987* 

The brown soil zone is characterized by semi-arid climate, with short grass prairie being the dominant native vegetation. Soil is light brown in color. Soil organic manner is normally less than 3% and pH from 6.0-7.5.

The dark brown and thin black soil zones are characterized by mixed grass prairie being the dominant native vegetation and soil organic matter 3-5%. The A horizon is dark brown to black in color and has pH from 6.0-7.8.

# Climatic Data

Vulcan County is located in the semiarid Prairie Grassland climate region of Alberta. The mean annual precipitation in the county varies from approximately 390 mm to 450 mm. On the average the county is usually drier in the east than in the west. The majority of precipitation occurs during the months of May to September.

The county is located along the northern edge of the Chinook belt. During the winter months these westerly to south westerly winds rapidly remove snow from the land. The frost free period for crop production is approximately 123 days. Environment Canada reports that the average first fall frost occurs on September 17<sup>th</sup> and the last spring frost can occur as late at May 19.



Chinook winds can melt snow in hours

There are three agro climatic regions within Vulcan County, they are: 2AH, 2A and 3A (Dzikowski and Heywood 1990; Alberta Agro meteorology Advisory Committee, Agrating Working Group 1987). Figure 5 (ASAC 1987) shows that most of the county is considered a 2A; this category states that moisture is a slight limiting factor to crop growth in about half the years but the frost free period is usually sufficiently long for wheat to mature without frost damage. The eastern portion of the county is classified as 3A, where moisture is a moderately severe limiting factor to crop growth and the frost free period is greater than 100 days. The north west corner of the county and the Buffalo Hills is classified as 2AH, where both moisture and heat limitations affect crop growth, and the frost free period is over 90 days. These areas correspond to the boundaries between the thin black, dark brown and brown soil zones as illustrated in figure 5.

All areas within Vulcan County have sufficient growing degree days to grow most cereals and oilseeds. The southern portion of the county receives favorable climate to grow specialty crops such as chick peas, and various beans due to the higher heat index and lower moisture. Most of Vulcan County lies within the Mixed Grass Ecoregion. In the eastern portion of the county there is a small area located in the Dry Mixed Grass Ecoregion. This boundary can be found between the Dark Brown and Brown soil zones.

### Surficial Deposits

Surficial materials in Vulcan County are mainly residual material, water and wind sediments, and glacial till. Glacial till deposits occur as terminal moraines with the surface form of irregular hills or undulating ridges. This till is the most common deposit in the county and can be found throughout the whole area. Within the northern and western portion of the county fluvial, lacustrine and eolian deposits can be found. Lacustrine plains are found mainly in the western portion of the county. In the eastern portion of the county till is the dominant parent material, the till deposits are generally less than 15m in thickness. In the southern portion of the county, till is the dominant surficial deposit and is generally less than 10m in thickness.



Bedrock exposures are quite common along the shoulders of the upland. Figure 6 shows the areas within Vulcan County that have shallow bedrock.



**Figure 6.** Areas with shallow bedrock within Vulcan County Source: Vulcan County, 2004



With the large amount of arable acres and the favorable weather conditions, Vulcan County is one of the largest cereal grain producing counties within the province of Alberta.

Land use	Area of farms reporting (acres)	Land In Crop (acres)	Summer Fallow Land (acro	Tame or seeded pasture (acres)	Natural land for pasture (acres)
Vulcan					
County	1,308,948	696,608	247,431	73,923	274,137
Alborto			3,053,21	5,512,6	
Alberta	52,058,898	24,038,861	4	54	16,503,920
Canada	166,802,197	89,934,387	11,565,5 18	11,872, 170	38,032,172

#### Table 5. Land use in Vulcan County, Alberta, and Canada, 2001.

Source: Census Agricultural Region (CAR), Census Division (CD) and Census Consolidated Subdivision (CCS), 2001

#### Table 6. Field Crops in Vulcan County, Alberta, and Canada, 2001.

Field Crop	Spring wheat (acres)	Durum wheat (acres)	Winter Wheat (acres)	Barley (acres)	Rye (acres)	Oats (acres)
Vulcan County	254,780	93,656	4,590	176,820	10,538	13,583
Alberta	5,809,275	962,906	80,415	4,902,090	117,138	1,364,674
Canada	20,513,716	5,279,369	1,043,107	11,606,068	366,888	4,670,615

Source: Census Agricultural Region (CAR), Census Division (CD) and Census Consolidated Subdivision (CCS), 2001

Vulcan County is very diverse with cereals not being the only crops grown. Oilseeds, pulse crops, and forages are also grown throughout the county.

Tuble ?? Onseed, pulse erops, and for ages in ? arean county, Theorem, and canada, 2001.								
Сгор	Canola (rapeseed)	Flaxseed	Mustard	Alfalfa	Tame Hay	Field Peas	Field Beans	
Vulcan County	40,282	992	7,097	32,724	13,827	23,916	12,065	
Alberta	2,660,509	40,219	57,116	3,915,607	2,279,767	608,217	150,006	
Canada	9,347,765	1,647,384	400,786	11,129,488	6,944,464	3,312,278	1,638,385	

#### Table 7. Oilseed, pulse crops, and forages in Vulcan County, Alberta, and Canada, 2001.

Source: Census Agricultural Region (CAR), Census Division (CD) and Census Consolidated Subdivision (CCS), 2001



Flax is one of the diverse crops in Vulcan County

Cropping practices vary throughout the county. In the northern and western portion of the county, most producers have adopted a two to three year cereal rotation followed by a year in pulse and oilseeds. Summer fallow and chem-fallow has steadily declined in these areas due to the induction of minimum or zero tillage within the seeding operation. On average, field preparation for seeding has been reduced to one or two tillage passes in the spring, with no tillage in the fall to increase snow trapping for moisture. Cereal and oilseed crops are the predominant crops grown in these areas with hay and forages found in small amounts. The majority of the producers within this area are grain farmers, the remaining operations consist of mixed grain and cattle operations.



The majority of Vulcan County landowners are grain producers.

In the central portion of the county most producers follow a similar crop rotation with the exception of summer fallow and chem-fallow acres being predominant in their rotations. The adoption of minimum and zero tillage has become common in these areas to maximize available moisture for crops. Summerfallow and chem-fallow rotations are used to reduce weed infestations the following year. Cereal crops are abundant in this area and the ability to produce high protein wheat is common. Hay and forages are found in small amounts throughout this area. The majority of producers within this area consist of mixed grain and cattle operations.

In the southern portion of the county, the crop rotations become a little more diverse. Cereals and oilseeds are still commonplace but there has been a steady increase in specialty crops such as beans and chick peas. The southern portion of the county is an ideal location for these types of crops since beans and chick peas thrive in warm and dry conditions. Summer fallow and chem-fallow rotations are widely used since precipitation levels are usually lower as compared to the northern and central areas of the county. With the Little Bow running through this area, there are several producers who have irrigation in their farming operations. Forages and hay crops as well as pastureland are more abundant since many areas in the south have predominately sandy soils. The majority of producers within this area consist of mixed grain and cattle operations.

The eastern portion of the county is also a very diverse agricultural area. Within Vulcan County the majority of irrigation is found in this area. Although the typical cereal and oilseed rotations can be found, many producers have incorporated several other types of cash crops such as timothy hay and alfalfa for export. Many dryland farms also exist in this area. Because these areas are typically drier than the other portions of the county, summer fallow, chem-fallow, and strip farming are widely utilized. Most dryland crops consist of cereals and some oilseeds. Private land pasture is commonplace as well as several large community pastures. The majority of producers within this area consist of mixed grain and cattle operations.



Vulcan County is located in the South Saskatchewan River Basin, which is home to the majority of irrigation in Alberta. McGregor Lake Reservoir, Travers Reservoir, Badger Lake Reservoir, Little Bow Reservoir, and the new Twin Valley Reservoir, the Bow River, and the Little Bow River are all integral sources of water for irrigation in Vulcan County. The Bow River Irrigation (BRID) District is partially in Vulcan County.



The Twin Valley Reservoir is the newest addition to water storage in Vulcan County.

Reservoir	Live storage (dam3)
Badger	53,650
Little Bow	21,078
McGregor	351,059
Travers	104,638
Twin Valley	62,700

Fable 8.	Live storage of	reservoirs	in Vulcan	County.
				•/

Source: Alberta Irrigation Information 2003, AAFRD

In 2001, 117 farms in Vulcan County report using irrigation for a total of 55,018 acres. Irrigation allows for more diverse crops and lets producers obtain higher yields. Cereals and forages are the primary irrigated crops in Alberta. The most common method of irrigation in Alberta and Vulcan County is pivot sprinklers.

Table 9.	Irrigation	from	rivers	in	Vulcan	County.
I abic 7.	1111guillon	nom	111015		v urcum	county.

$\mathbf{\Theta}$							
River	Total Acres	No. of Licences 1	No. of Licences	No. of Licences			
	Irrigated	to 100 acres.	101 to 300 acres.	over 300 acres.			
Bow River	27, 444	155	62	16			
Little Bow River	21, 302	115	44	16			
C (11 ) I :	I.C: 2002 ((ED)	<b>`</b>					

Source: Alberta Irrigation Information 2003, AAFRD



Figure 7. On farm irrigation method mix. 2003 Source: AAFRD



Being located in southern Alberta, Vulcan County can be subjected to several environmental and topographic influences that play a direct role in agriculture. Sustainability and conservation are becoming vital in order to survive in agriculture and have a healthy future for farming.

Table 10.	Soil	conservation	practices in	Vulcan	County,	Alberta,	and Can	ada.
	~ • • • •		p		~~~, ,			

			Soil conservation practices (number of farms implementing)						
	Total # of farms	Crop rotation	Permanent grass cover	Winter cover crops	Contour cultivation	Strip- cropping	Grassed waterways	Windbreaks or shelterbelts	Green manure crops for plow down
Vulcan County	709	526	227	36	39	169	136	81	8
Alberta	53,652	31,206	21,985	1,243	1,627	1,959	6,422	9,784	1,557
Canada	246,923	148,979	78,111	11,313	8,460	8,413	25,434	33,340	16,419

Source: Census Agricultural Region (CAR), May 15, 2001

Some limitations to productivity in Vulcan County include wind and water erosion, salinity, drought, and light sandy soils.



Salinity is a production issue in Vulcan County.

With the advent of reduced tillage and direct seeding, wind erosion events have declined dramatically over the past few decades. Vulcan County can be subjected to very high winds, and loose soil will blow and erode the valuable top soil. The south west portion of the county has light sandy soils, and is highly erodable. Again, with the increased use of

reduced tillage and direct seeding, these highly erodable areas are being cropped and soil quality is improving.

Water erosion is generally only an issue when snow melt runs off in spring. This can be avoided by keeping coulees and waterways in permanent cover.

There are approximately 2,539 saline areas in the county, for a total of 36,591 acres of saline land. Many of these areas are under permanent cover, and other saline areas can be reclaimed using grasses and forages.

Vulcan County Agricultural Services has played a major role in providing the landowners with programs that are needed to assist in creating a sustainable farming operation. With the financial and technical assistance of the Alberta Environmentally Sustainable Agriculture (AESA) Program, Vulcan County Agricultural Services has assisted producers with advice and technical assistance on matters from shelterbelts to salinity control and reclamation.





Vulcan County consists mainly of crop production and small cattle operations, but there are several confined feeding operations throughout the county. Unlike some adjacent counties these operations are spread throughout the county and are not found in one area.

There are currently 5 feedlots located throughout the county varying in size from 50,000 head down to 1,200 head. All five feedlots are located evenly throughout the county and are a substantial distance apart from each other. The southern and central portions of the county are the only areas that do not have a feedlot.



**Figure 8 - Location of confined feeding operations within Vulcan County** *Source: Vulcan County, 2004* 

Alberta and Canada, 2001.					
Cattle	Total cattle and calv	es Total cows			
Vulcan County	78,751	30,351			
Alberta	6,615,201	2,183,332			
Canada	15,551,449	5,863,365			
Source: Census Agricultural Region (CAR), May 15, 2001					

Table 11.	Cattle population in Vulcan County	,
Alberta a	d Canada, 2001	

In addition to feedlots there are currently two swine operations within the county. Located north of Vulcan there is one swine operation consisting of 800 sow farrow to finish, and in the eastern portion of the county there is a swine operation consisting of a 3000 head sow and 4 - 2500 head nursery barns. Located just west of Vulcan there is one poultry operation consisting of 30,000 layers.

Finally within the county there are 10 Hutterian Brethrens or colonies. These colonies currently farm approximately a combined 96,943 acres, and each colony is operating a confined feeding operation which basically consists of cattle, swine, and poultry.

Due to the size of Vulcan County, these confined feeding operations account for a very small portion of area. The location of these areas is distributed evenly through out the county with no concentration in one division. There have been no new feedlot developments within Vulcan County for the past several years and no indication of new feedlots being developed, which could be due to the recent BSE crisis. Within the past several years we have seen the construction of a swine operation and a poultry operation. Developments of confined feeding operations within the county have been very slow and sporadic.

One development that seems to be on the rise is the steady increase of Hutterian Brethren operations within the county. Over the past 10 years, several new Hutterian Brethrens have been established as well as their annual acquirement of land has been steadily increasing.

There are several farms throughout the county that are involved with livestock other than cattle and hogs.

Livestock	Horses and Ponies	Goats	Wild boars	Bison (buffalo)	Llamas and alpacas
Vulcan County	1,633	936	х	355	125
Alberta	159,962	42,270	8,067	79,731	12,894
Canada	460,569	182,851	33,131	145,094	25,782

Table 12.	Livestock	nonulation i	n Vulcan	County.	Alberta.	and Canad	a. 2001.
1 abit 12.	LIVESTOCK	population i	n vuican	County,	Alberta,	anu Canau	a, 2001.

Source: Census Agricultural Region (CAR), Census Division (CD) and Census Consolidated Subdivision (CCS), May 15, 2001



A trend that seems to be on the rise within the county is the increase of specialty farming.

Fruits, berries, & nuts	Total area (producing and non- producing) of fruits, berries and nuts (acres)	Total producing area of fruits, berries and nuts (acres)
Vulcan County	15	7
Alberta	2,517	1,990
Canada	258,236	189,938

Source: Census Agricultural Region (CAR), Census Division (CD) and Census Consolidated Subdivision (CCS), 2001

The northern portion of the county is home to two greenhouses as well as one west of the Town of Vulcan. All three of these greenhouses specialize in greenhouse flowers, small vegetables, and young tree species.

Organic farming has also increased over the years with four certified organic operations found throughout the county. Due to the vast land size of Vulcan County these farms represent a very small area. Although there has been some small growth in exotic livestock operations such as an alpaca farm located in the northern portion of the county and two bison operations located in the central and southern portion of the county, growth remains low.

Development in this area of agriculture remains extremely slow compared to the neighboring districts. This is an area that needs to be investigated and promoted to encourage this type of growth, since our location and climatic values favor this type of development.





The largest economic activity in Vulcan County is agriculture, both dryland and irrigation production.

According to the 2000 Canada Census, over 57% of reporting farms reported gross farm receipts over the \$100,000 category and 9% in the \$500,000 and over category. In comparison to other counties in the province, Vulcan County is above average in gross farm receipts.

# Table 14. Farm business operating expenses for 2000 in Vulcan County,Alberta and Canada.

Operating Expenses	Farms reporting	Amount \$
Vulcan County	709	183,310,142
Alberta	53,652	8,908,533,331
Canada	246,923	33,213,077,917

Source: Canada Census, 2000

Vulcan County is an important provincial agricultural area, as shown by farm receipt values. According to the 1991 Canada Census, 280 farms (33%) out of the 855 reporting farms in Vulcan County reported gross farm receipts over \$100,000, compared to the provincial average of 24%.

When comparing the 2001 census data to the 1991 census data there were 146 fewer farms reporting in the 2001 census. This reinforces the claim that smaller farms have been more likely to dissolve over the past 10 years with the larger farms incorporating more acres into their farms.

# Table 15. Comparison of gross farm receipts for 1991 and 2001in Vulcan County and Alberta.

Cross Form Dessints	Farms re	porting	Amount (\$)		
Gross Farm Receipts	1991	2000	1991	2000	
Vulcan County	855	709	98,874,404	213,982,765	
Alberta	57,245	53,652	5,541,937,470	9,919,447,223	

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337 Statistics Canada 1991 Census of Agriculture, Catalogue 95F0354

In 1991, the average farm operated approximately 1,120 to 1,599 acres. In comparison the average farm in 2001 operated approximately 1,600 to 2,239 acres. The result of the increased acre sizes could possibly be contributed to the increase in the expenditure to revenue ratio.

	Vulcan County		Alberta	
Area of Farms	1991	2001	1991	2001
Total number of farms	855	709	57,245	53,652
Total area of farms (under 10 acres)	1	7	1,008	1,118
Total area of farms (10 - 69 acres)	23	23	3,420	4,098
Total area of farms (70 - 129 acres)	6	8	2,728	3,041
Total area of farms (130 - 179 acres)	59	63	9,309	8,945
Total area of farms (180 - 239 acres)	5	10	1,231	1,388
Total area of farms (240 - 399 acres)	70	50	8,536	7,299
Total area of farms (400 - 559 acres)	53	39	5,911	4,600
Total area of farms (560 - 759 acres)	68	46	5,672	4,600
Total area of farms (760 - 1,119 acres)	124	90	6,825	5,625
Total area of farms (1,120 - 1, 599 acres)	158	79	5,188	4,382
Total area of farms (1,600 - 2,239 acres)	132	101	3,232	3,297
Total area of farms (2,240 - 2,879 acres)	58	69	1,512	1,594
Total area of farms (2,880 - 3,519 acres)	34	35	859	971
Total area of farms (3,520 acres and over)	60	89	1,814	2,308

Table 16. Comparison of farm area for 1991 and 2001 in Vulcan County and Alberta.

Source: Statistics Canada 2001 Census of Agriculture, Catalogue 92-337 Statistics Canada 1991 Census of Agriculture, Catalogue 95F0354

Crop inputs have dramatically risen over the past 10 years mostly in part to the increased prices for fossil fuels, fertilizers, chemicals, and others. Commodity prices have remained relatively constant over the same time period. Commodity prices have not increased enough to offset the rise in farm inputs and many producers have had to increase their acreage size to compensate for the difference. This has also created significant pressure on the smaller operations which have been forced to sell out or rent their land to larger operations.

Another factor that has affected the loss of farming operations is the younger generations of the farm family pursuing other careers due to the uncertain economic viability of farming. Another phenomenon of rising receipts is the decrease in the proportion of operators who work at non-farm jobs. By the time receipts reach the \$250,000 or more sales class, the proportion with non-farm jobs dwindles to less than 19%, compared with 45% for all operators. Of young farmers in the over-\$250,000 sales class, only 23% have non-farm jobs. In classes under \$250,000, 64% of young operators work at non-farm jobs.



Over the past 13 years Vulcan County has seen a dramatic increase in subdivision applications. Since the northern portion of the county is within a half hour's drive from the city of Calgary there has been a definite increase in families moving from the city to purchase acreages in this area. The majority of subdivision applications have been first parcels out of quarter sections and the primary use is residential. There has been very little application development in the industrial sector.

The immediate area surrounding Vulcan has seen a gradual increase throughout the past 13 years. Since 1990, there have been several community developments (multi-lot parcels) created along the McGregor Lake and also the Travers Reservoir. Because of their location and their proximity to Calgary and Lethbridge, several families have purchased lots at these developments and the numbers are increasing steadily on a yearly basis.

Since 1990 approved subdivision applications have increased yearly and by looking at the previous several years these numbers will continue to rise. Between 1990-1994, there were 87 approved subdivisions, in 1995-1999, 106 subdivisions were approved and in 2000-2003, 107 were approved. Figure 9 breaks down the approved subdivisions per councilor division for the years of 1990-2003. This chart has been broken down to the quarter section. There may be more than one subdivision per quarter section approved. For example, some of the community developments within the county were shown as one approved subdivision for that particular quarter.



**Figure 9. Vulcan County subdivisions 1990-2003** *Source: Vulcan County, 2004* 

# Subdivision Breakdown by Area

**South** – The southern portion of the county has seen fairly low subdivision activity over the past 13 years. Most of the approved subdivision applications are evenly located throughout the area and the majority of these subdivisions are first parcel out residential acreages. With the low amount of subdivisions in this area the farming community has seen very little pressure. Due to the farther distance from any major urban centre, subdivision growth is low in this area.

**Central** - This area has seen subdivision numbers on the rise in the past 13 years. Over half of the approved subdivisions in this area are within 5 miles of the Town of Vulcan and many more approved subdivisions are located along Highway 23. There were also several approved subdivisions near the hamlet of Ensign. There are several Confined Feeding Operations within this region but they are located in areas where subdivision growth has not been influenced.

With the continued growth of the Town of Vulcan this division will continue to see a rise in subdivisions. The majority of subdivisions in this area are acreage residential. Although subdivisions are on the rise in this area the impact they have had on agriculture remains low.

**West** – Subdivision growth has fluctuated over the past 13 years in this division. The highest period of growth was mid-1990 and has since slowed down. With the influence of the Highway 2 corridor and the proximity to Calgary, many approved subdivisions are accommodating families that work in Calgary and surrounding areas. This division should begin to see an increase in subdivision application because of its location. There are a few Confined Feeding Operations in this division.

The majority of the approved subdivisions are located close to the hamlets of Brant and Herronton. The impact of the subdivision growth on agriculture in this division remains fairly low but recently these numbers are increasing and will continue to do so based on its proximity to Calgary and Highway 2. The majority of subdivisions in this area are first parcel out residential acreages.

**East** – This portion covers a large area and represents most of the eastern side of Lake McGregor and Travers Reservoir. As a result, this division has seen substantial subdivision growth along the shores of these lakes. Since 1990 there has been three community developments established in this division with several families moving into these areas. With the exception of several multi-lot developments situated along the McGregor and Travers Lake there have been very few single parcel out subdivisions.

Around the Lomond area, subdivisions have been low with a small increase over the past several years. Confined Feeding Operations are slowly increasing with several new developments over the past few years.

**North** - This area over the past 14 years has seen the largest growth in subdivision activity. With its location and the land values in the adjacent counties, there has been increasing demand for subdivision proposals. Currently, most of the subdivision growth is located along the Bow River in the northern portion of this division, but there also appears to be subdivision growth around the Village of Mossleigh and along Highway 547. This subdivision growth will continue to rise in this area. To date the effects of

growth on agriculture have not been drastic. This may change if subdivision growth continues to rise in the future.

The largest Confined Feeding Operation in Vulcan County is located in the north portion of Vulcan County; however, it is situated in an area that does not pose a threat to subdivision development. The majority of subdivision activity is single parcel out development, but recently there have been a few multi-lot developments along the Bow River.

# Division Overview

Overall, subdivision growth within the county has remained fairly stable. As shown in Figure 10, subdivision growth is rising on a yearly basis.

Compared to neighboring counties, the subdivision growth in Vulcan County has been fairly low. With the City of Calgary constantly expanding, subdivision growth will continue to expand. Intensive Livestock Operations have begun to slowly grow within the county but the effects of CFO's on subdivisions has been quite low. A look at the future shows that developments will continue to grow, especially in the north. As well, the areas surrounding the Town of Vulcan will continue to see the greatest effect of subdivision growth in the county. These areas also contain some of the best agricultural farmland in the county. At present the effects of this growth on agriculture has not had much of an impact, but in the near future this may become an issue.



**Figure 10. Vulcan County approved subdivisions by year** *Source: Vulcan County, 2004* 



In terms of Agricultural Viability, Vulcan County offers a lot of strengths and opportunities for future development and long-term sustainability. The County is also facing some threats and has some weaknesses. This SWOT analysis provides an overview of the strengths, weaknesses, opportunities and threats of agriculture in the Vulcan County today.

# Strengths

One of the biggest strengths that Vulcan County possesses is its vast size and its ability to produce high quality crops. Vulcan County is one of the largest cereal producers in Alberta and is recognized worldwide for its quality of wheat. Vulcan County plays a large agricultural role in Alberta and conservation and sustainability are key factors for continued success.

Another industry that is beginning to show strength in Vulcan County is the Oil & Gas Industry. Over the past 15 years we have seen a dramatic increase in oil and gas production throughout the county. This industry plays a positive role for Vulcan County by adding employment opportunities to local ratepayers, increased rental revenue for landowners, and tax revenues municipally. Location is another major strength for Vulcan County, being located between the two major trading centers of Calgary and Lethbridge and its close proximity to the United States.

#### Weaknesses

One of the biggest weaknesses that Vulcan County has endured is the departure of residents to the urban centers. The farming industry has experienced financial and environmental hardships throughout the past 25 years. As a result, many young residents have decided to pursue careers outside of agriculture and have relocated to urban centers. Farm operations are getting larger and smaller farms are slowly selling out to the larger operations.

Another weakness that Vulcan County is faced with is the loss of local business support. With the County located between two major centers and the recent introduction of large discount superstores, many residents are spending their money in urban areas outside of the County.

# **Opportunities**

With agriculture the main driving force of the economy in Vulcan County, there is a need to investigate local opportunities to market agricultural commodities. Vulcan County is strategically located within the province of Alberta to enable producers to supply urban communities with quality agricultural products. To achieve this goal there is an opportunity to create local agricultural marketing businesses to manufacture and supply

this demand. Growth in this area has been slow with only a few businesses beginning to look at this opportunity.

No-Bull Marketing in Carmangay is an excellent example of how local producers have come together to market their agricultural commodities. This company was implemented just a few years ago. It is now flourishing with positive marketing results that are not only provincial but national and international as well.

## Threats

One of the biggest obstacles that Vulcan County continues to face is the continual departure of the younger workforce to the urban centers. The family farms are slowly becoming larger with the smaller operations selling out to the bigger operations. Farm size is getting larger with corporate style farming becoming commonplace. Hutterite Colonies continue to flourish.

The past few years have brought poor commodity prices and poor crop yields due to drought which continue to put a strain on the family farm. The future of the family farm is at risk and will continue to be at risk unless other opportunities can be investigated to enhance farming operations. The traditional ways of farming are no longer viable in today's agriculture, and new agricultural marketing opportunities must be considered. Dry weather conditions have taken a toll throughout Vulcan County; sustainability and conservation practices are going to play a major role in the future of agriculture.





Although agriculture is facing many challenges in Vulcan County, the farming community remains committed to long term sustainability. Weather influences and low commodity prices will remain the biggest obstacle in agriculture and long-term planning will become a must. Large scale farming will continue to grow and smaller farming operations will continue to decline since agriculture is beginning to only be profitable to the larger scale operations.

The opportunity to introduce new specialty crops will continue to be pursued. A good example of this is the recent introduction of the chick pea, mint and lentil crops in the southern portion of the county and also the sod farm development in the northern portion of the county.

Subdivision growth will continue but will advance slowly compared to neighboring districts, the western and northern portions of the county will continue to see pressure in this sector. The municipal planning department for Vulcan County has recognized this growth and has developed land use planning bylaws to ensure proper growth in these areas.

The number of intensive livestock operations in Vulcan County is considered low compared to neighboring districts and the potential for growth in this area is positive. However, public perception of the development of these operations will continue to be a barrier to the increased development.

In the future, the opportunity to create diversified markets in agriculture will be necessary to keep agriculture healthy. With the excellent location of Vulcan County within Alberta, diversified markets could become a healthy viable choice for development. Vulcan County has a viable agriculture industry and is well-positioned to continue to strengthen and grow in the future.





