



Less trouble with grasshoppers and frost, but more

# Two Centuries of bat

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Farmers have been growing crops in Manitoba since 1812 — nearly 200 years. In those two centuries the acreage of crop has grown substantially, from the one-half bushel of winter wheat seed planted in 1812 by Scottish settlers in Point Douglas, to over 13 million acres planted throughout southern Manitoba by both multi-generation and recent Canadians. It is amazing achievement, particularly considering short time frame and the battles farmers have faced along the way.

My grandfather was a United Grain Growers (UGG) district elevator manager and as a child I spent part of several summers driving around Manitoba with him as he did his elevator rounds. When he retired he received a book “Harvest of Bread” by Grant MacEwan and it was passed it on to me when he passed away. It is an excellent, easy-reading book which is an “account of development in the great wheat industry” with a focus on Manitoba. In fact reading this book contributed to my desire to study agriculture in university. I mention this because the information from this book is the basis for most of the information in this article.

For example Table 1 is my attempt to combine the information from the MacEwan book with other sources and create a “quick and dirty” summary of the agricultural history of Manitoba. I hope you find this summary interesting. To me what is most interesting is that I would have thought the current period was the period with the greatest changes in cropping but when I look at almost any stage in Manitoba’s cropping history it seems that there has almost always been great change. To me this summary emphasizes how Manitoba farmers have consistently proven themselves to be extremely adaptable.

The last 200 years of cropping in Manitoba have largely paralleled the same cropping advances that have occurred in most of the developed world. Growing a Manitoba crop has gone from dependence on the hand, to horses, to machines, to chemicals, and recently to technology —

who knows what the future will bring? One sure thing is that future farmers will still be battling yield robbers. The yield robbers of drought, floods, pests, all were problems 200 years ago and continue to be problems today.

## Plague of mice

Why is that? With all the advances cropping has made in mechanization, chemicals and technology, should we not have “dealt with” many of the yield robbers. Certainly yields have increased substantially, but so have inputs. In 1824 the settler Alexander Ross reported that wheat yields as high as 68 bushels per acre were achieved at the Red River Settlement. Such yields are still rare today!

The MacEwan book and other sources list the major yield robbers for the many of the years where crop loss was significant. For example MacEwan mentions the plague of locusts in 1818, the plague of mice in 1825, and the great flood of 1826. As an exercise I went through his book and a few other sources and pulled out all the cause of losses for each year that were described over the period 1812 to 1959. This rather unscientific compilation consisted of 59 entries which I have summarized in the Figure 1 pie chart. This chart is my best estimate of the “appearance” of the “early” yield robbers in Manitoba.

I wanted to see how these early yield robbers compared to our “modern” yield robbers so I used the MASC crop insurance records to come up with the modern data. MASC has been in the crop insurance business since 1960 and has been tracking yield robbers from day one. However, the MASC record is limited to losses that have resulted in crop insurance payments (it does not capture minor losses that are below the crop insurance deductible) and it also doesn’t reflect management-related yield losses that are not covered by crop insurance. A pie chart summarizing the modern yield robbers over the period 1960 to 2006, as determined by the MASC record, is provided in Figure 2.

When comparing Figure 1 with Figure 2, three things

# fighting yield robbers

*In 1824 the settler Alexander Ross reported that wheat yields as high as 68 bushels per acre were achieved at the Red River Settlement.*

jump out. It would seem that excess moisture was not as important a yield robber historically as it is in the modern period. In contrast, frost was a more important yield robber than it is in the modern period. Finally, the most striking difference is that grasshoppers were a major cause of loss historically but don't even register as a significant cause of loss in the modern period (only 0.5 per cent). These differences observed in this crude comparison could be taken as evidence that Manitoba's yield robbers have changed over time. Maybe all the advances made in mechanization, chemicals and technology have "dealt with" many of the yield robbers after all. These figures indicate that this is likely the case for frost and grasshoppers.

I think farmers like a good fight. Why would I think that? Just review the history of agriculture in Manitoba (Table 1). Up until the late 1800s Manitoba farmers had to battle with fur traders who didn't like the idea of

their livelihood being challenged. Later, after fighting in World War I, the farm sector turned the technology of war machinery on developing machines to attack the soil and crops. Then, after fighting in World War II, the farm sector focused war chemical technology on developing chemicals to attack crop pests and producing synthetic fertilizer. Now farmers are in a new fight — using technology to work on growing fuel to take the lead in battling global warming. This could mean changes are ahead — whether we like it or not, advances in agriculture seem to be strongly associated with "good fights."

The Chinese philosopher Confucius is attributed as saying "Study the past if you would define the future." On that basis I would say the future of cropping in Manitoba is clear. Manitoba farmers will continue to battle any challenges that arise and will continue to show off their ability to adapt. As for yield robbers, they may change but they are unlikely to go away.

Figure 1.

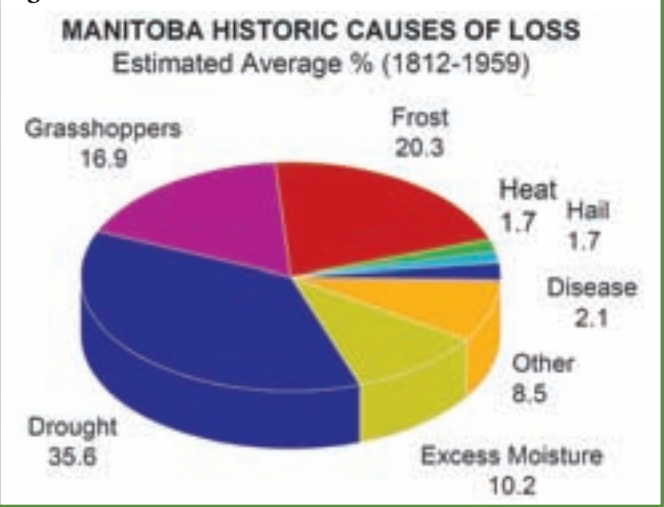
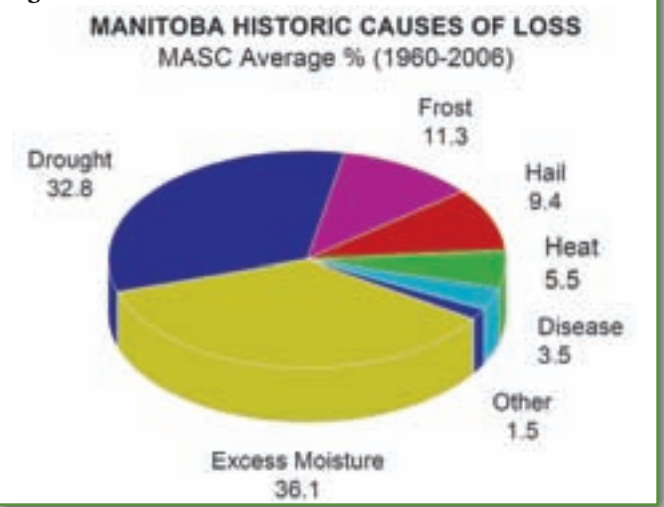


Figure 2.



**Table 1: Quick and dirty summary of the agriculture history of Manitoba (as it relates to cropping)**

Hand and oxen powered agriculture stage	Pre-1812	~1400 – Aboriginal agriculture identified in Lockport archeological dig 1754 – First prairie wheat planted in northern Saskatchewan
	1812 – 1824	1812 – Selkirk settlement plants first crops, sowing by hand, cultivating by hoe, hay and grain cutting by sickle, threshing with a flail 1815 – Crop destroyed by fur traders wanting to discourage agriculture 1824 – First plow in Manitoba — horses used for power
Horse powered agriculture stage	1825 – 1869	1825 – First windmill in Manitoba (for milling wheat) 1844 – Red River cart brigades began
	1870 – 1879	1871 – Township survey plan system introduced 1872 – Homestead Act offered 160 acres on even-numbered sections for \$10 if 40 acres cleared and cultivated within three years 1874 – Barb wire patented ending unrestricted grazing 1875 – First Red Fife wheat planted 1876 – First wheat surplus in Manitoba 1877 – Smooth steel plows introduced (John Deere started in 1837) 1878 – Rail line connects Winnipeg to East 1879 – First western elevator on Prairies — round one built at Niverville
	1880 – 1909	1880 – In-ground seeders introduced (mechanical seed drills invented by Jethro Tull in 1701) 1880s – Steel roller method for milling wheat adopted 1884 – R.M. system introduced as admin unit 1885 – Agriculture replaces furs as most important industry in Manitoba 1896 – Canada paid private company \$5 for every immigrant convinced to arrive from Europe 1897 – Crows Nest Pass Agreement made 1901 – Majority of agro-Manitoba survey done
Horse and mechanized agriculture stage	1910 – 1929	1910 – Marquis wheat introduced 1912 – Integrity wheat grading system implemented ~1915 – Steam-mechanized agriculture is wide-scale — steam-powered threshers (first steam engine for ag made by J.I. Case in 1869) 1917 – First mass-produced gas tractor the “Fordson” 1917 – First PTO developed 1919 – First Canadian Wheat Board formed 1920s – Many Manitoba soils have lost “virgin” fertility
	1930 – 1944	1929 – 1938 — Dirty Thirties 1930s – Rubber-tired tractors came into use 1935 – PFRA formed 1936 – Thatcher wheat introduced from U.S. 1939 – Prairie Farm Adjustment Act (PFAA) introduced
	1945 – 1959	1946 – Last year more people in rural area than urban 1947 – 2,4-D introduced 1950 – Farm electrification well underway 1950s – Anhydrous ammonia introduced as cheap N 1953 – Selkirk wheat introduced
Chemical and mechanized agriculture stage	1960 – 1979	1960s – Number of tractors for powering farms exceeds horses 1960 – Crop insurance introduced 1974 – First canola variety tower released 1975 – Roundup herbicide introduced 1970s – Zero-till popularized 1970s – Air seeders developed
Technological agricultural stage	1980 – 2009	1980s – Beginning of precision agriculture 1980s – Large-horsepower equipment common 1989 – Canada-U.S. Trade Agreement made 1990s – Transgenic crop varieties developed 1991 – Gross Revenue Insurance Program introduced (ended 1995) 2000s – Ag for fuel (ethanol, biofuel)
The next stage?	2010 – future	Environment- and consumer-driven cropping (ALUS, functional foods, organic)?