

WEATHER REPORT: CANADA'S LONG HOT SUMMER

Introduction

Focus

This *News in Review* report looks at the effects of the hot, dry summer that most of Canada experienced in 2002. These included large forest fires in Alberta, Saskatchewan and Quebec, repeated smog alerts in Southern Ontario and the Maritimes, and—most alarmingly—a second year of devastating drought on much of the Prairies.

The summer of 2002 will be best remembered for the weirdness of its weather. The weather seemed to delight in extremes: unusually high heat for most of the northern hemisphere, widespread forest fires in Canada and Russia, record drought conditions in much of North America, and heavy rains and floods in Europe and Asia. By August, the British meteorological service was reporting that temperatures throughout the northern hemisphere were running 0.73 degrees centigrade above normal—making 2002 the hottest half-year on record.

In Canada, the most severe effects were felt in the Prairie provinces, where the previous year's drought conditions not only continued but even worsened. Some parts of the Prairies saw no precipitation whatsoever during the spring and summer months. Crops that were planted failed to germinate, or produced only stunted plants not worth the effort of harvesting. Cattle ranchers were unable to find suitable pasture for their cattle to graze.

Available water supplies became rapidly depleted. In many areas, grasshoppers devoured those few plants that actually grew. By mid-June, it was apparent that large numbers of Prairie farmers and ranchers were facing a real crisis. Older Westerners, who remembered the 1930s, the years of the Great Depression when an extended drought turned the area into a dustbowl, began to draw comparisons between conditions then and those of 2002.

Western Canadian farmers also faced a further difficulty. A new U.S. farm bill was passed by Congress, which provided higher subsidy payments to

American farmers for products that were already supported, such as wheat. There were also new subsidy payments for crops that are grown in quantity by Canadians but had rarely been grown in the U.S., such as field peas and chick peas.

Because U.S. support payments to American farmers were now up to eight times those of the Canadian government to its farmers, Canadian farmers found themselves at a huge competitive disadvantage. Canadians also feared that high support payments would encourage U.S. farmers to grow far more than international markets could handle, forcing a decline in prices.

Both the federal and provincial governments recognized the plight of Western farmers, and aid packages were developed to provide some assistance. It was clear, however, that funds would not be sufficient to provide universal relief. Many farmers declared that they would be forced to give up their farms and take other jobs. Many ranchers sold off part or all of their herds, in some cases losing breeding stock.

The drought showed no signs of easing. Some research, in fact, indicated that this was just the beginning of a long, dry period for the West that could alter the look of Prairie agriculture for years to come. Scientists pointed to a 2000-year period of recurring, severe droughts of 10 years or more in length.

The drought also drew attention to Canada's role in the fight to reduce global warming. Many scientists pointed to these drought conditions as one more piece of proof that it was time for Canada to bring its gases from fossil

Further Research

Visit the Environment Canada Web site at www.ec.gc.ca to locate more information about environmental issues of importance to Canadians. You might wish to review a copy of the online e-zine.

The Meteorological Service of Canada (MSC) has endured a 38% reduction in its operating budget since 1995. Many feel that the MSC needs more money in order to more accurately predict and track weather conditions in Canada. The MSC Web site is weatheroffice.ec.gc.ca

fuels under control. Others argued that they were mostly the result of a normal cycle in Earth's climate. In any case, Canadians were becoming far more

aware of what a difference just a degree or two more in the average temperature would mean.

To Consider

1. What were the most important effects of the long hot summer of 2002?

2. How did the weather affect Canada's Prairie provinces?

3. What do you remember most about the weather in the summer of 2002?

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A Disaster in the Making

To help you understand the extent of the weather problems faced by Canadians during the summer of 2002, watch the video report and record your answers to the questions on this and the next page.

1. As early as March 2002, many experts and ordinary farmers were convinced this would be a bad year for farmers. What are some of the predictors cited in the video as signs of a bad summer to come?

2. For how long had drought been a problem on the Prairies? _____

3. What major problem, in addition to lack of rain, seemed to be a certainty to Prairie farmers?

4. How did the U.S. government respond to the plight of its farmers?

5. What was the extent of the change in U.S. government support to farmers over previous years?

6. What is the likely result of intervention by the U.S. government with respect to crop production and crop prices?

7. How did the Canadian government respond to the request for aid from Prairie farmers?

8. What strategies are governments and individuals using to deal with the shortage of water?

9. Why are many farmers upset with water use by the oil and gas industry?

10. What is the oil and gas industry's response?

11. Why are many people pointing to the Prairie drought as evidence of global warming?

12. Describe the extent of the forest fires that blazed across Canada during the summer.

13. How did the drought affect the cattle industry on the Prairies?

14. What percentage of the Prairie cattle herd is likely to be lost to cattle ranchers because of relocation or slaughter? _____%

15. Describe the "ripple effect" that Leonard Nazaruk predicts will be felt in communities throughout the drought area.

For Consideration and Discussion

The effects on agriculture of the continuing drought on the Prairies will be felt not only in the West but also throughout Canada. What are some of the likely ways in which all Canadians will feel the effects? How are Canadians from other parts of Canada likely to respond to the problem in the West?

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Not a New Problem

Did You Know . . .
Some analysts report that the crop loss in Western Canada could reach \$2.6-billion in 2002?

Late in 2001 Lawrence Solomon, writing in the *National Post*, reacted to the alarming news that the Prairie provinces seemed to be suffering from a severe drought. "The Prairies," Solomon wrote, "regularly succumb to drought. Prairie farmers learned that lesson well, and have since been harvesting subsidies. The rest of us have yet to understand that we've been attempting the impossible in expecting sustainable agriculture on the semi-arid Prairies."

The first European explorers to visit the Palliser triangle, a major part of the growing region in southern Alberta and Saskatchewan, would certainly have agreed with Solomon's views on its suitability for farming. They referred to the area as the Great American Desert, and never considered it farming territory.

Recent research describes a regular pattern of drought on the Prairies. Dr. Peter Leavitt of the University of Regina believes that there have been between 35 and 40 droughts as bad as that of the 1930s over the last 2000 years, and that the weather seems to have been especially benign over the last 100 years.

A three-year study, the Prairie Drought Project, indicates that the 20th century was likely the wettest during the last 2000 years.

Alarmingly, the research indicates that there is a 15 per cent chance of a drought during the next three decades equivalent to the 40-year drought lasting from 1680 to 1720. A drought like that which took place during the

1930s has a 50 per cent chance of occurring—and that drought is considered one of the mildest during the 2000-year period under study. In fact, every 10 to 15 years a drought seems to take place; the current one is beginning to show the potential to be worse than most.

Should the current drought prove to last as long as 10 years, it would have some severe results. All lakes three metres deep or less would dry up. There would be no water left in reservoirs to be piped to needy areas. Birches and aspens at the lower end of the boreal forest would die off. Forest fires and insect defoliation would increase. (Meteorologist Mike Flannigan insists that we should expect more fires anyway; warmer temperatures will cause them to increase to twice the area they currently cover in a given year. Drought would further compound the problem.)

So research indicates that drought has been and is likely to be an ongoing problem on the Prairies. For some, this reality brings into question their very suitability as farming country. Lawrence Solomon is one critic who is prepared to abandon them. He writes: "One hundred years ago and more, lured by free lands and wild-eyed visions of prosperity, pioneers were duped into settling the Prairies. . . . The Prairies cannot support a large farming population, and never could. Canadians who believe otherwise are being duped, as surely as those early Prairie pioneers were duped." His is certainly a provocative, if not very popular, view.

Responding

1. Briefly summarize the view of Lawrence Solomon concerning the problem of drought on the Prairies.

2. Do you think the Prairies should be abandoned as a farming area? Explain fully.

3. How do you think each of the following might respond to Solomon's ideas?

- An experienced farmer in his sixties

- A young student at an agricultural college in Western Canada

- A senior official working for Canada's Department of Agriculture

- A member of Parliament representing a heavily urban constituency

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The Dust Bowl

Articles for Study

An excellent brief introduction to the great Prairie drought is George Hoffman's article on Saskatchewan during the Great Depression, "The Arid Years," at www.legionmagazine.com/features/canadianreflections/97-03.asp. Also see "The River Runs Dry: The Dust Bowl and the Drought of the 1930s" by Linda Ward, at cbc.ca/news/features/drought_1930s.html.

"And so the Depression was a dividing line. It separated an earlier period of expansion and growth from a time of regional disparity when the West would not lead Canada into the future but look to other areas of the country for support. Never again would anyone believe that a prairie farm offered certain prosperity."

—George Hoffman

Farmers and commentators often compare the drought that afflicted many parts of the Prairies in 2002 to the drought that affected the same part of Canada during the Great Depression of the 1930s. During that decade, farmers who had for most of the 1920s successfully raised a great crop of wheat not only saw the bottom drop out of the market, but saw the land itself seemingly turn on them. As prices continued to drop during the early 1930s, a 10-year drought began that turned most of the plains/prairie area in both the U.S. and Canada into a huge dust bowl. Hot winds created huge dust storms, which blew dry soil off the land, creating a prairie desert. Surviving crops were likely destroyed by great plagues of grasshoppers.

Thousands of farmers gave up their farms, moving either to the cities to find jobs or attempting to relocate on land farther north. Those who remained found it almost impossible to raise a decent crop; often, anything that did grow was destroyed by insect infestations.

The worst year of all is usually said to have been 1937, and it is to that year's heat and dryness that the summer of 2002 has been most often compared. Some old-timers who remember that year insist that the more recent drought is even more severe.

Farmers did learn several lessons from the experience of the Dust Bowl. New methods of tilling the soil were developed to keep it from readily reducing to dust particles. Other crops were planted in addition to wheat to make farming less affected by price fluctuations in a single commodity. New methods for retaining available water, such as dugouts, were developed.

And so the West survived, and for most of the remainder of the century saw agricultural success follow agricultural success. The most pressing question would seem to be whether the current weather pattern will prove even more destructive than that of the 1930s, or simply be a brief glitch in an overall successful attempt to farm a sometimes difficult landscape.

Responding

1. Briefly describe conditions on Canada's Prairies during the Great Depression.

2. Do you believe that the Prairies are headed for even greater agricultural losses in the future? Explain.

3. Why should all Canadians be concerned about weather conditions on the Prairies?

Follow-up

Obtain and read the two recommended articles.

1. How do the climate conditions described in the readings compare with those shown in the video?

2. How do the social conditions compare?

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Government Intervention

Definition

Subsidy is a term that usually refers to money given by a government to producers of certain goods in order to support incomes, keep down prices, avoid layoffs or compete more effectively with foreign producers.

“Stack Canadian farmers up against their global counterparts and they are the Western world’s lean, mean growing machines—one of the least subsidized players in the global market for agricultural goods.” — Krista Foss and Dawn Walton, *The Globe and Mail*, August 13, 2002

“Canadian farmers . . . in times of crisis are both dependent on government aid programs and ultimately disappointed with them.” — Krista Foss and Dawn Walton, *The Globe and Mail*, August 15, 2002

These two statements by the same reporters in two different newspaper articles seemingly contradict one another, but they accurately describe the situation Canadian farmers face in competing with their European and U.S. counterparts. Farm subsidies play an important role in providing farm income, and the Canadian farmer is rarely given an advantage in the marketplace.

Canadians were already at a disadvantage at the beginning of 2002. Both the U.S. and the European Union were heavily subsidizing many of their farmers well beyond Canadian levels. Typical was the wheat subsidy: the U.S. subsidizes wheat at eight times the Canadian rate; the EU rate is 13 times higher. In 2000, payouts to EU farmers represented 38 per cent of their income. In the U.S. 22 per cent, and in Canada only 19 per cent.

The new \$45-billion (US) farm legislation raised the stakes even higher. Some subsidies increased by more than 70 per cent. Experts quickly predicted that the law would encourage overproduction by U.S. farmers, flood the market, and lower world commodity prices. Farm groups gave as an example the 25 per cent drop in the prices of grain and oilseeds between 1995 and 2000—the direct result, they claimed, of EU and U.S. subsidies.

Ken Rosaasen, an economist at the University of Saskatchewan, summed up the feeling of many in the West. “Our farmers are doing many, many, many of the right things in diversifying. But I don’t think it’s reasonable to expect them to fight the treasuries of the U.S. and Europe on their own.

The governments of the three Prairie provinces quickly demanded at least \$1.3-billion per year in federal “trade injury” payments. Federal Agriculture Minister Lyle Vanclief was quick to respond that the government could not match the U.S. largesse, especially when the law would definitely be appealed to the World Trade Organization.

Others in the West pointed to the high tariffs protecting the Canadian poultry and dairy farmers—farmers chiefly located in Ontario and Quebec. “We’re not crying for subsidies, just an equal playing field with the rest of Canadian farmers,” said Dave Brown, a Saskatchewan farmer.

In June the federal government, spurred largely by crop failures caused by the drought, did announce a new \$5.2-billion farm aid plan to be shared on a 60-40 basis with the provinces (40 per cent of the cash to come from the provinces). The Western premiers especially were displeased, insisting that they were unable to find the cash to

meet their share of the new support. Ultimately, Alberta did agree to go along with the plan; Saskatchewan, Manitoba and Quebec refused to sign the deal.

There seemed little doubt that farmers truly needed some sort of assistance. In 1995, 83 cents of every farm dollar went to covering costs; by 2000 it was 87 cents. Meanwhile farm incomes, especially in the West, had declined and

were continuing to decline. But not all farmers saw subsidies and other government assistance as an acceptable solution.

“I don’t want to be part of an industry that’s crisis to crisis and all sound bites about dry grass and grasshoppers,” said Alberta farmer Brian Kriz. “The Canadian grain economy is really disadvantaged by unfair prices . . . we really have to look at the big picture of world trade.”

Discussion

Stewart Wells, President of the National Farmers Union, sees a problem of attitude as a key reason why American farmers receive a greater level of government support than do Canadian farmers. “Bush has said what’s good for America’s farmers is good for America. Unfortunately, it’s just not the same attitude that our politicians have here.” Do you believe this is indeed the case? Do the steps taken by various levels of government during the recent crisis in any way support or negate this statement? Write a one-page position paper on this issue.

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Weird Weather World-wide

The summer of 2002 presented challenges far beyond Canada's borders. Here are some of the major weather happenings throughout the world in the summer of 2002. If interested visit www.cbc.ca for more information, particularly visuals, on global weather stories.

China: In most parts, it was far hotter than usual. Bears in the Shanghai zoo were even seen begging soft drinks from passersby. Floods in Hunan province destroyed 27 000 houses and led to the evacuation of at least 270 000 people. About 1000 deaths were reported during the rainy season from flooding and landslides across China; 200 of these were in Hunan.

South Asia: The monsoon season in India was especially vicious in Bihar state. According to authorities, the flooding of its rivers displaced about 16 million people and destroyed 338 000 houses. In Nepal, flooding caused at least 400 deaths. In Bangladesh, which traditionally suffers from monsoon flooding, the worst floods in four years killed 157 people and displaced another 7 million.

The Middle East: Temperatures across the region were frequently described as unbearable. Temperatures as high as 47 degrees were recorded in Riyadh, Saudi Arabia, where a member of the royal family was said to have died of thirst during a car trip through the desert.

Czech Republic: The rains missing from Canada appeared with a vengeance in Europe. By mid-August, flooding on the Danube and Vltava Rivers had killed nine Czechs and forced 200 000 to leave their homes. This included many residents of Prague, where the water was 12 metres above its normal level.

Germany: One German city particularly hard hit by flooding was Dresden, a city that was almost destroyed by bombing during the Second World War. At least 33 000 people were forced to leave their homes, and many of the carefully restored public buildings were flooded. Many other German cities were also devastated. European officials estimated that it would take about \$20-billion (US) to clean up the flood damage across the continent, and half of this would be spent in Germany.

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Global Warming and Canadians

A Decima Research report prepared for Environment Canada, obtained by *The Globe and Mail*, seems to indicate that few Canadians are concerned about what many scientists see as the most significant ecological problem of our time. Among others, the report makes the following points:

- Public awareness of the problem has changed little over the past few years.
- There is a huge gap between professed concern for the environment and the way people actually behave.
- Despite a lack of real knowledge or concern, Canadians regularly tell pollsters that they support the Kyoto Accord to reduce greenhouse gases—as high as 78 per cent in a recent Greenpeace survey.
- Many Canadians do not understand the exact nature of the greenhouse gas problem.

Test Yourself!

Here is a brief quiz on global warming and Canadians' interest in it. See how good *your* understanding of the problem is by indicating whether the statement is true or false. Answers are given below.

1. Increased ultraviolet radiation causing more cases of skin cancer is one problem associated with global warming. T___ F___
2. Climate change is caused by the increased concentration of greenhouse gases in the Earth's atmosphere. Both deforestation and burning fossil fuel contribute to the problem. T___ F___
3. Erratic—"weird"—weather is one result of global warming. T___ F___
4. Nuclear power is a contributor to global warming. T___ F___
5. Sunspots are a contributor to global warming. T___ F___

Answers

1. False. This is a problem associated with the deterioration of the earth's ozone layer. It is the trapping of heat by greenhouse gases that leads to climate change.
2. True.
3. True.
4. False. Nuclear power releases almost no greenhouse gases (25 per cent of Canadians believe it does).
5. False (17 per cent of Canadians believe they do).

Further Discussion/Action

The federal Environment Ministry is trying to educate Canadians about the problem of global warming. It believes that popular support for governments taking action on climate change will increase as people learn more about it. How might the government best go about increasing public knowledge of this issue? Working with a small group of peers, prepare an action plan to educate Canadians more effectively about this serious environmental problem. Your plan should include specific strategies for reaching Canadian youth. (If you like your plan, you might consider presenting it to your local member of Parliament or staff at Environment Canada.)

Our Plan to Educate Canadians About Global Warming

Our Objective/Goal

Our General Strategy

How To Reach Canada's Youth
