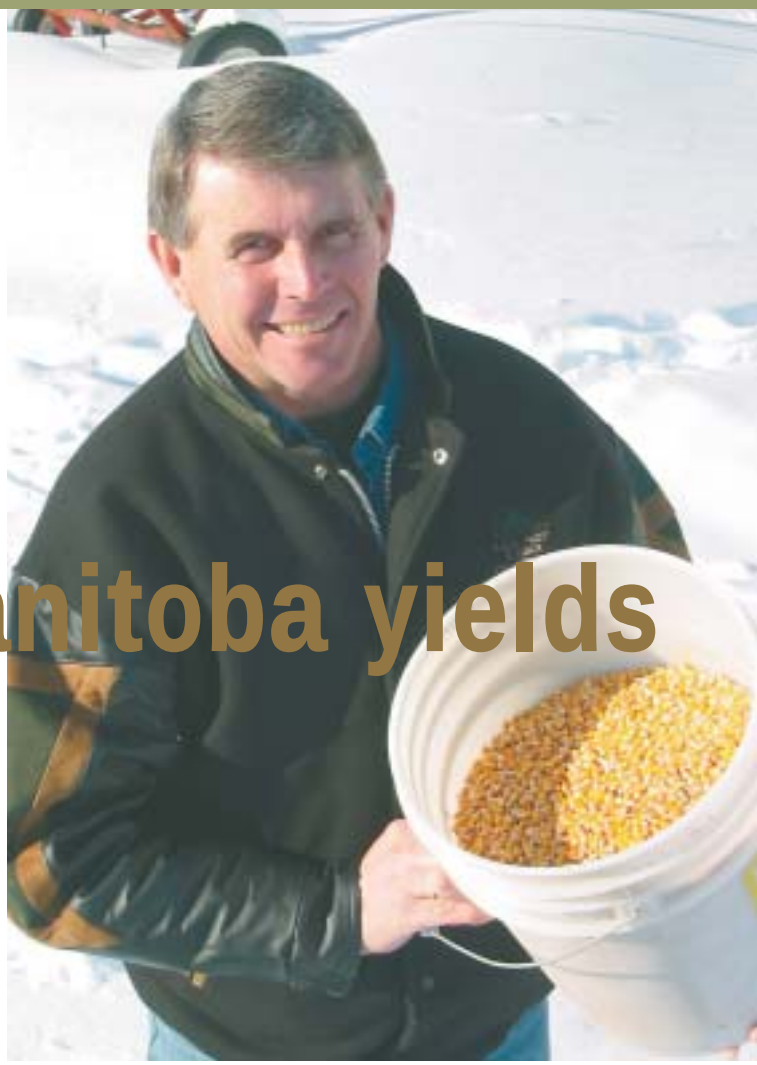
*Bob Bartley, a Roland-area farmer, harvested his biggest yield of corn ever in 2003. He, like many farmers, was surprised by yields last fall given the weather we had.*



# Explaining Manitoba yields in 2003

by Allan Dawson, Farmers' Independent Weekly

What the heck happened last year?

A lot of amazed farmers are asking that question. And agrologists, who are just as surprised, aren't sure. But they have some theories and they hinge on the same thing as delivering a good punch line — timing.

Parts of Manitoba were blessed with bin-busting yields, with some farmers reporting their best crops ever. Others weren't so lucky, but many farmers were pleasantly surprised considering the hot, dry conditions later in the growing season.

Roland-area farmer Bob Bartley was among the fortunate. His hard red spring wheat averaged well over 70 bushels an acre.

"We didn't know spring wheat could yield like that," he said in an interview.

His corn, which averaged more than 130 bushels an acre, was also the best ever.

Those yields boggle the mind, but consider this: the average spring wheat, canola and corn yields in the RM of Roland in 2003 were 63, 41 and 113 bushels an acre, respectively. (These yields are compiled by the Manitoba Crop Insurance Corporation and can be found on a risk area basis in *Yield Manitoba* or by risk area or municipality at the Manitoba Management Plus Program website www.mmpp.com.)

How do those Roland yields compare to the 10-year average (1991-2001)? Not even close. The average wheat, canola and corn yield is 39.6, 30.8 and 88.3 bushels an acre. Last year in the RM of Roland wheat, canola and corn yielded 59, 33 and 28 per cent above the average.

Even in drier and hotter western Manitoba, there were some remarkable spring wheat yields. Take for example the RMs of Daly and Pipestone. Their average wheat yield is 29.8 and 27 bushels an acre; in 2003 the average was 36 bushels in both municipalities.

Canola didn't fare quite as well, with Daly being slightly below average at 22 bushels an acre, while Pipestone was just a little above average also at 22.

The fact that, on average, Manitoba wheat yielded 39 per cent above the 10-year average, reinforces the notion that it can handle hot, dry weather better than canola.

Obviously averages don't tell the whole story. There were low yields in western Manitoba and the northern Interlake. Still province-wide, wheat and canola averaged 47 and 33 bushels an acre, well above the 10-year average of 33.8 and 27.7 bushels an acre.

## Timing is everything

But why? It was very hot and dry in late July and early August. Bruce Burnett, director of the Canadian Wheat Board's weather and crop surveillance department, believes the answer is tied to timing — when the seed was planted and when the moisture and heat hit.

"Last year the timing of when the precipitation came and when the dryness came helped suppress the levels of disease that we'd seen previously by a considerable margin," Burnett said.

"There was a lack of disease pressure that did help the yields out, but again I don't think it was the whole story because the temperatures were extreme, compared to what we're used to and it should have done more damage than it did to those types of crops."

We usually think of drought as the biggest potential threat to

crop yields but excess moisture and plant disease can be just as harmful.

According to crop insurance records, drought and excessive heat accounted for 57 per cent of claims in 2003. But on average claims related to heat and drought and excess moisture are split evenly as 36 per cent.

Andy Nadler, a GIS specialist with Manitoba Agriculture in Carman, agrees the timing of the moisture and heat stresses were big factors.

A lot of annual crops dodged the bullet because the timing of the moisture stress was a little bit later in the season," he said. "Forages didn't do very well because late in the season they ran out of water."

The Dugald area was also blessed. Some of the local farmers also report their best yields ever, Nadler said. Rain records show the area received what Nadler described as "nice rains" during the summer — none over an inch and never more than 10 days apart. The crops didn't go dry, but they weren't saturated, so plant diseases weren't a problem.

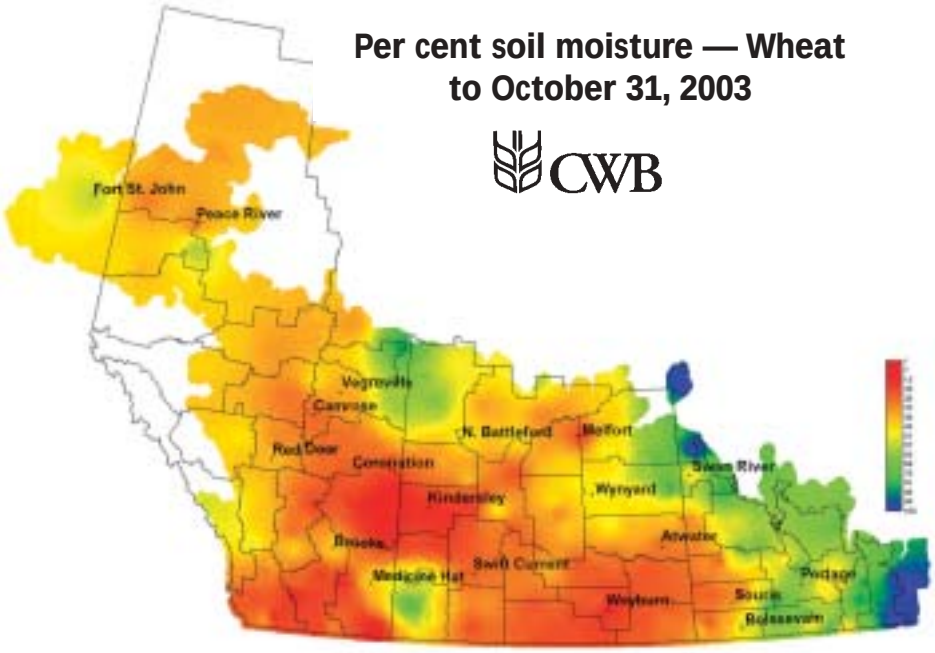
It was hot toward the end of July, but it was extremely hot from about August 10 to the 21st. Highs each day but one exceeded 30 degrees C, Burnett said. Most years crops would've burned up given the lack of rainfall during that period.

"But we had the crop planted extremely early in Manitoba so it meant even for the early crops they were maturing earlier than when the brunt of the heat hit us and they were already into a maturation phase when we got into the hot, hot temperatures," he said.

"I would make the argument that if you had planted at the normal planting date that we would've (run out of moisture)."

In fact some areas of the province did. They missed key rains earlier in the growing season.

Crops like soybeans that set their yields later in the season also suffered lower yields.




## Reserves helped

Another important factor was reserve moisture from the fall of 2002. Much of the province received rain then, but it was largely cursed for delaying harvest and downgrading crops. But that moisture contributed to yields the following year.

Paul Bullock, an agrometeorologist at the University of Manitoba, is another one scratching his head about what happened last summer. He's wondering if researchers need to revise their standard notions about how efficiently plants use moisture.

"Every time we bring out a new variety with higher yields they are a little more efficient at converting biomass into yield," he said. "Fundamentally we could be changing the water use efficiency, but I don't know."

Bullock also agrees with his colleagues about timing.

"If you get the moisture at the right time it can be worth more bushels," he said. "If the rain is spaced out you just get more effective use of the water, but that's something we don't have a good handle on at all."

While it seems like common sense, it hasn't been quantified, Bullock said.

Unfortunately, Manitoba soils went into the winter a lot drier in 2003 than they did in 2002. (See soil moisture map.)

"We ran that bank dry so we'll have to make up for that somehow this (spring) season in order to do a repeat of this last year," Burnett said. "If we were presented with the same situation in July and August (2004) that we had last year and have the soil moisture levels of right now I think we'd be looking at a very different situation."

The good news is most of Manitoba has snow and there's lots of winter to come. But as important as snowmelt can be, especially for sloughs and dugouts, timely spring and summer rains are usually more important.

So 2003, to borrow a line from Dickens, was the worst of times and the best of times. And because of that it's a year that won't be soon forgotten.

### Manitoba Management Plus Program yields for 2003

| CROP | BUSHELS / ACRE | 10-YR AVE | % INCREASE |
|---|---|---|---|
| WHEAT | 47 | 33.8 | 39 |
| CANOLA | 33 | 27.8 | 30 |
| CORN | 102 | 77.5 | 32 |

Source: Manitoba Crop Insurance Corporation, Management Plus Program

### Wheat and canola yields

| RM | '03 YIELD WHEAT | 10 YEAR AVE WHEAT | '03 YIELD CANOLA | 10 YEAR AVE CANOLA |
|---|---|---|---|---|
| DAUPHIN | 45 | 35 | 32 | 27.4 |
| DALY | 36 | 29.8 | 22 | 25.2 |
| DUFFERIN | 64 | 39.6 | 41 | 30.1 |
| PIPESTONE | 36 | 27 | 22 | 21.3 |
| ROLAND | 63 | 39.6 | 41 | 30.8 |

Source: Manitoba Crop Insurance Corporation, Management Plus Program