

the

DITCH- RIDERS

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Val Marie



How do people make a living in the hottest, driest region of the Prairies? Water. As our Canadian climate changes, we look to an age-old method to distribute and conserve water. In the arid southwest, seasonal flood irrigation is essential to the ranching community—and the ditch-riders deliver it!

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On a spring day, along Highway Four south of Val Marie, you'll notice, at any hour of the day or night, a quad speeding along a network of ditches. It's the ditch-rider who patrols and inspects the irrigation canals that supply much-needed water to livestock producers.

The challenge of growing enough winter feed for livestock can make or break ranchers in this part of the country. In the rural municipality of Val Marie, covering some 4,000 acres, the answer to that challenge starts at the Newton Lake Dam. Tucked away in the Frenchman River Valley, Newton Lake is one of six dams on the Frenchman. On a designated day, the Water Security Agency (WSA) opens the gate at the dam that releases water into the main irrigation canal. Stacey McCrea, the contracted ditch-runner, and a rancher himself, is standing by.

At the dam gate, the water moves at roughly 100 cubic feet per second. The ditch-runner's first task is to make sure the three main canals are flushed. Stacey removes the snags of vegetation that impede water flow, and checks for leaks caused by gopher and badger holes. A backhoe is on hand to pull large blockages up on the canal banks. This year, because of dry conditions, the canals are full of tumbleweeds.

Seventy-five miles of canals criss-cross the municipality, and dozens of wooden structures with gates direct the water. These canals and structures have been maintained since the 1940s. A massive siphon on the main canal takes the water under the Frenchman River.

There is a lot more to the job than opening and closing the gates in the structures. "You don't get much sleep," Stacey says good-naturedly.

Stacey, born and raised here in the grasslands, has been doing this job for three years. He diverts the water through a system of gates into side canals or onto the fields of his forty water patrons. "I'm irrigating roughly ten people at a time—only so much at a time," he says. Part of the job is to coordinate the farmers and ranchers to be ready to receive the water. Once the water is sent into a field via the "head-ditch," it is up to the owner of the field to make sure the water is evenly distributed. This is done by a series of strip dykes (soil ridges at thirty-three or fifty-foot intervals) that conduct the water the length of the field.

Periodic flood irrigation, unlike some types of irrigation, doesn't leach nutrients from the soil. The water, however, can't stay on the land for too long or the soil becomes waterlogged and damages the plants. Getting the



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▲ A wheelchair ramp has been added and funding recently secured for restoration of the interior. Rod Appleby, who attended Bethel for grades one to three, stopped by for a visit in October. Credit: Anne Appleby

➤ Bethel School in its original location, late 1970s. Credit: Courtesy Kaye Hemus

water off the field is as important as getting the water onto it. “You know roughly when a field will be done, but it depends on how dry it is, the slope, and what the farmer considers to be done,” Stacey says. “I get lots of calls in the middle of the night.”

Many things affect the flow of water in the canals: “The level changes, the pressure changes—it might be a full moon, or the wind that causes it,” says Stacey. “You might have to drive around in the dark, looking for a snag or a leak.”

Throughout the four-week irrigation period, he’ll be on a quad, driving along the canal trails to maintain general surveillance of water levels. He

may be checking levels at sundown, then up again at 4 a.m., to make sure nothing causes water to overflow canal banks and flood the roads.

The main canals are cut and maintained for optimal water flow, but throughout the surveillance period, removing obstructions is often a matter of “forking.”

“You grab your fork,” laughs Stacey. “It’s usually just a 10-minute job.”

Once all the fields have been flooded, the water is drained back into the Frenchman River. Stacey will make sure the drainage ditches are open, so the water can re-enter the river with as little wasted as possible. Part of his job

is to make sure that water is conserved. From there, the water moves on to the United States.

The water in the Frenchman River, dammed at Newton Lake, originates from the Cypress Hills. Flood irrigation in the RM of Val Marie uses only gravity and the natural slope of the land—no pumping or sprinklers involved. The operation “borrows” water enroute to the States. According to international water laws, the U.S. is entitled to fifty percent of the water originating in the Cypress Hills. The main canals were dug about eighty years ago, one of six water projects in the southwest established as part of the Prairie Farm Rehabilitation Act — the PFRA.



During the Dirty Thirties, when thousands of people left the Prairie provinces, the PFRA was established to conserve water and rehabilitate the drought-stricken Prairies. A range of innovations, from shelterbelts to tillage practices, and from community pastures to irrigation works, were undertaken.

It took decades to develop the system of side canals, ditches and dykes. Some of the original canals were dug by horse-drawn earth-movers. Maurice Lemire, born in Val Marie, and a ditch-rider in the 1960s, started out as a labourer, building the wooden gates called “structures.” And he dug them in by hand. Back then, a canvas with a two-by-four was used to direct the water into a side canal. “If you wanted to stop the water in the ditch, you dropped this canvas across the ditch and threw some dirt on it, so it stopped the water at that spot. Then you’d cut a hole in the bank to send the water into a particular part of the field. It was a lot of work.”

During the 1960s, the hay lands were leveled to take advantage of the natural southeast slope from the Cypress Hills. Maurice describes how the fields were leveled—an engineering technique called the Parkinson Method. “A stake was placed in the corner of each field and everything referred to that point, elevation-wise and angle-wise,” says Maurice. “The whole field was staked every 100 feet. After the calculations were made, paper socks were marked at three-tenths, four-tenths, etc. and the socks were put on every stake to show the amount of dirt that was to be added or taken off. Then it was up to the farmer to contract the land levelling—a little shaved off here to put over there.”

It was an expensive and painstaking undertaking, but one that has paid off. Annual flooding is crucial to the livelihood of livestock producers, and, by extension, to the community of Val Marie. Growing feed locally controls the costs to producers. A balance must be struck between the size of the herd and the feed available. The cost of feeding livestock over the winter rises exponentially the farther away that feed must travel. The ecological footprint increases, too. The price of gas is a major consideration. Trucking costs can match what a load of feed is worth. In March 2022, the cost of round bales increased threefold from the previous two years.

Many cattlemen had to reduce their herds in 2021 because of poor hay crops. “I wasn’t able to grow enough feed for my cattle in 2020 and 2021,” says Stacey, “and I had to adjust my herd accordingly, dropping 70 cows.” It could take five or more good years to build a herd up again.





◀ (Top) For decades after the last students left Bethel, the schoolhouse remained a community centre for card parties and even the odd bridal shower.

◀ (Bottom) The building was moved to the Bienfait Coalfields Historical Society Museum in 2006.

▲ Rod Appleby, who attended Bethel for grades one to three, stopped by for a visit in October. Credit: Courtesy Anne Appleby

➤ Bethel School in its original location, late 1970s. Credit: Courtesy Kaye Hemus

The PFRA devolved to Agriculture and Agri-Food Canada (AAFC), and, in 2017, irrigation downstream of Val Marie Dam was turned over to the Lower Frenchman River Valley Users Corporation. Luckily, there were enough water-users, with long experience irrigating, to make that transition fairly smooth. The water-users who sit on the Val Marie Irrigation Committee contract the ditch-rider annually, and make decisions about water fees and canal maintenance. Importantly, AAFC still replaces and maintains the canal structures.

In the drought year of 2021, with just one flood irrigation and a five-week heat dome over the southwest, hay crops were poor. In 2022, two irrigations were undertaken—a bonus. Hay crops were fair in '22, but there is ongoing concern about the cost of maintaining the canal infrastructure. The cost of maintenance could be prohibitive. There is no room for additional users, so the current forty patrons will have to pay for whatever decisions are made. “Without irrigation, you’d only be able to cut hay one out of every 10 years,” says Stacey,



The Ditch-Riders



▲ The Riverhurst ferry across Lake Diefenbaker is the world's longest cable ferry.

◀ The Paynton ferry is one of two on the North.

you will see hundreds of deer grazing on the fields adjacent to the canals. These canals provide seasonal habitat for riparian species, and the birds and mammals that feed on them.

Healthy prairie and healthy ranching are not only compatible but integrated. The ecological integrity of rangeland owes much to the careful management by ranchers. Indeed, there are some who believe the wild prairie preserved in Grasslands National Park would never have survived the past eighty years without irrigation to ensure sustainable ranching practices—rather, these ranges would have been carved up for any small piece of flat land suitable for dryland farming.

The southwest owes much of its preserved history to sustainable ranching and the irrigation of the hay lands. The ditch-rider continues to perform an important service to ranchers, farmers, and the community.



“Irrigation has to happen; otherwise, it’s going to be sagebrush down here. Unless you get camels.”

Losing local hay production would mean many livestock operations would cease altogether. With that loss, the tax base would inevitably shrink, commerce decrease, and the population further shrink in the southwest.

Climate change affects all of us, so the solutions to aridity, worked out over a century, are worth safeguarding and considering further. This part of the world has something to teach us about making the most of what we have.

The benefits of flood irrigation go far beyond the economy. Val Marie is also the gateway to Grasslands National Park, protecting one of the rarest ecozones in Canada. Come autumn,