

Cows and pulp are made for each other, scientists are finding. The discovery stands to give Alberta cattlemen an unexpected boost from the province's developing forestry industry.

Two independent research projects in British Columbia have found that waste pulp sludge gives cows an energy boost and is terrific for helping them digest feedgrain. There's one hitch -- pulp fibre waste from the older B.C. mills tends to include deadly dioxin and furan. Fortunately Alberta is getting mills that won't be using the chlorine-bleach process blamed for producing the toxic chemicals.

"We're forever looking at ways to feed cattle more economically," says Bruce Owen, animal science professor at the University of British Columbia. Pulp waste is almost pure cellulose, a glucose energy source similar to starch. Its molecular structure rules it out for human digestion -- assuming anyone would want to eat the murky substance. But cows and sheep have the necessary rumen microbes to break down the cellulose.

Owen, an expert on cattle nutrition, started investigating pulp waste because B.C. feedlots face extra costs of importing conventional supplies. Feed is more plentiful in Alberta but even here farmers would benefit from a cheaper source. "There's lots of potential in northern Alberta," Owen says. "It's even possible that someone could build a feedlot next to a pulp mill." But a feedlot in the south of the province would have the disadvantage of high transport costs. He says: "The hooker with this stuff is it's about 75-per-cent water."

He and fellow researchers, who started their work in 1986, produced a silage from pulp waste. They mixed it to produce a feed containing pulp silage and barley, with a supplement of canola meal to make up for the low level of protein in the pulp. Feedlots normally use a mixture of barley and hay.

"The result wasn't quite as good (for weight gain) as an Alberta hay ration but it came close," Owen says.

He feels the advantage of a cheap and ready supply of pulp fibre waste can outweigh hay's merits.

But he abruptly stopped the feedlot trials when he realized the waste contained toxins. Public fears of dioxin-contaminated beef would be devastating, Owen says. "That's all the beef industry would need."

He says pulp fibre feed is a potential blessing for the pulp industry, as a cost-saving way to get rid of waste. "But as long as they've got the chlorine in their bleaching process they've got a problem," Owen says.

Priya Mir, an Agriculture Canada research scientist at Kamloops, B.C., sees pulp waste as a way of improving conventional feed for faster weight-gain. Mir says her laboratory tests show pulp makes alfalfa hay or corn silage easier to digest. The improvement is most noticeable with the hay. "We wanted to determine whether adding the cellulose would have a beneficial effect on hay and silage," she says. "We feel it did." She says British studies on the cellulose in beet pulp -- left after extracting sugar -- suggest there's a future for waste from southern Alberta's beet production.

"The idea is that if forage is utilized better you can raise an animal in a shorter time or on less feed."