

# Introducing the wheat sheet

If you can tear your eyes from these words for a moment, have a look at the paper on which they are printed. All paper stock made in Canada is manufactured from wood fibre, most of which is harvested from the boreal forest. And about 70 percent of the paper we normally use in this magazine is made of virgin wood pulp harvested for that purpose. The remainder is from recycled paper, which was also originally made from virgin pulp.

But locked into the paper you are now holding is something revolutionary, at least in Canada: wheat straw. We call this our “wheat sheet,” and it is the fruit of a four-year project we have been working on with Markets Initiative, a Canadian environmental group devoted to the protection of the boreal forest, the Alberta Research Council (ARC) and our printer, Dolco Printing, which is based in Ottawa. The goals of the project are to alleviate the stress on our species- and carbon-rich forests and to demonstrate to the magazine industry and the pulp-and-paper producers in Canada that high-quality magazine-grade paper can be made from a mix of fibres, including agricultural waste such as wheat straw.

Now the ironic part of this story is that the wheat-straw pulp we used was imported from China, where papermakers have been using wheat and rice straw for many years. There is plenty of excess wheat straw in Canada, but nobody pulps it here. Canada's pulp-and-paper producers, with their historic and virtually unlimited access to the boreal forest, don't use it or any other non-wood fibre in their papers.

Markets Initiative is suggesting it's time for a change, time for Canadians to begin harvesting the boreal forest in a more sustainable manner.

Why wheat straw? Unlike oats and barley, the two other major cereal grains grown on the Prairies, wheat straw is not used for animal feed. It becomes bedding for livestock, and some of it is plowed back into the soil. But roughly 30 percent of it is simply the waste by-product of a crop that is valued for its grain alone. Canada remains one of the world's great wheat growers, which means there is a vast amount of unused wheat straw — an estimated 21 million tonnes, which could be turned into eight million tonnes of pulp and enough paper for 20 million

magazines. That straw could be a new source of revenue for farmers willing to bale and sell it to pulp-and-paper companies.

Yet, the expert in Canada in producing pulp from wheat straw is not a pulp-and-paper company but the ARC, a not-for-profit applied research and development corporation owned by the Alberta government. ARC scientists have been experimenting with wheat straw since 1999 and believe they have solved the major obstacle to its widespread use as a source of pulp. Wood fibre has a silica content of less than one percent. Wheat straw, by contrast, has a silica content of between three and seven percent. When wheat straw is cooked for pulp, the silica turns into glass, which is a significant production problem. But the ARC scientists have developed a clean process for removing most of the silica before the pulp is cooked. They've taken their process from bench top to a 10-tonne-a-day pilot project. Encouraged by the results, ARC would like to move to the next stage and work with a mill to turn the cleaned wheat pulp into paper. It is currently seeking a partner and that will likely be a mill owner in China. Canadian papermakers aren't exactly leaping into the breach despite the fact that adding wheat pulp is neither complicated nor ruinously expensive. As Robert Wellwood, ARC's manager of forest products, puts it, the biggest investment needed “is in changing the mindset of pulp-mill owners in Canada.”

That's what we hope this copy of *Canadian Geographic* will do. About 20 percent of the pulp used for this issue was made from wheat straw. We'd like to convince the magazine industry and, ultimately, the pulp-and-paper industry that adding agricultural waste to the pulp mix is a step forward, that it will ease some of the demand for virgin pulp from the boreal forest and offer grain farmers a new source of revenue for what is now largely a waste by-product. The next time we print on a wheat sheet, we want the straw to be purchased from Canadian farmers and pulped in a Canadian mill. We'll provide regular updates on how the mills respond to our challenge.

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