

Editorial

The recent announcements by the province of Ontario and the federal department of agriculture to purchase ethanol blended fuels is an encouraging signal that ethanol has a place in the Canadian energy market. But for a product to be in the market and to have significant market share are two different things. For ethanol to be successful it must be either economically competitive with gasoline or offer substantial environmental benefits that will justify to society the higher cost of the product. With present technology, there are two options for ethanol production: by using alcohol produced from grain, or alcohol produced from cellulosic (plant) fibre.

Grain ethanol has been in the U.S. marketplace in the United States since the early 1980s and numerous studies have examined the industry's present situation. On the question of economics, the consensus is clear: grain ethanol is more expensive than the rack price of gasoline and that there is no real potential to go beyond the 10% level of ethanol currently blended with gasoline. The cost of growing the feedstock is too high, markets will become saturated with the high protein distillers grain produced as a by-product and a lack of land suitable for the intensive cultivation management required by productive cash cropping all mitigate against the production of grain ethanol in the long-term.

With regard to environmental studies, the net energy gain, or CO₂ reduction, from grain ethanol is between 20-40% in the most positive studies, and no better than neutral in the more negative ones. If the best agriculture can do to reduce atmospheric emissions produced by the automobile is 40% from the 10% portion of the fuel source supplied by grain ethanol (i.e 4% total), then it is a spurious claim by advocates to be contributing to the reduction of global warming compared to the need for a 60% overall reduction in CO₂ emissions.

If government transportation or environmental officials, or even atmospheric scientists, had to make decisions on investing in an expensive technology with a maximum CO₂ global warming reduction of only 4%, and which also included the necessity of creating large grain-fed beef feedlots to dispose of the by-product, would it get the nod? Unlikely. Instead, greater impact could be achieved at lower cost by continuing to raise the price of gasoline, perhaps using "feebates" (taxing gas guzzlers and subsidizing fuel-efficient cars), and establishing toll highways to reduce automobile use while producing

revenue with which to subsidize public transportation systems. The grain ethanol lobby must be dreaming if it believes there is a free ride into the energy sector, during this era of government cost-cutting, as an environmentally-friendly and cost-efficient fuel alternative. The sector is already receiving up to \$4 billion a year in grain subsidies and the justification to subsidize the grain sector further to establish a liquid fuel business is dubious at best.

Now, what if these same officials and scientists were presented with an ethanol technology that could directly substitute for gasoline (no meagre 10% blend), caused little soil or ground water pollution, could use feedstocks grown on marginal soils, had no by-products, reduced CO2 emissions by approximately 90%, was already a lower cost option than new Canadian oil megaprojects (such as Hibernia) and within ten years is forecast to compete directly with the rack price of gasoline, the consideration would be different. A cellulosic ethanol industry based on the most resource efficient plants in the world, warm season native grasses, would be of much greater interest for research investment in that not only could substantial reductions in greenhouse gases be achieved, but could also lessen Canada's reliance on foreign oil as well as helping to diversify - both economically and environmentally - the farm sector.

One would also expect that if this same question was to be put to Agriculture Canada, especially in light of the national scientific workshop which it sponsored on the subject of climate change strategies for agriculture which identified cellulosic ethanol from perennial grasses (unlike grain ethanol) as a promising strategy to create a low CO2 loading, renewable energy source, the answer would also be positive. Sadly, however, the funds earmarked through the Green Plan for this type of research and development are being spent in large part where the quickest returns can be achieved without regard for the quality of the results. Therefore, using a grain production and handling infrastructure already in place has been deemed to be considerably cheaper in the short-term, with the bonus of appearing to be doing something for the farm community and the environment immediately, rather than starting from scratch with other alternatives that hold longer-term promise but which have no instant pay-back.

The message is clear: grain ethanol is not green ethanol, and the sooner government chooses to invest in the climate change technology with the most potential for reducing CO2 while resuscitating the farm sector through diversification and compensatory (rather than marginal) farming, the sooner ethanol will become green.