

# Burning our own fuels

Dr. E. Kirsten Peters, Turlock Journal, 9-21-10

Peters was trained as a geologist at Princeton and Harvard. This column is a service of the College of Agricultural, Human and Natural Resource Sciences at Washington State University.

The Gulf oil spill has shown us just one of the downsides of petroleum. That makes the mind of even a geologist like me turn to several questions about the future. Could we Americans grow more of our own fuel – enough to run a number of our cars, trucks and airplanes? And, quite importantly, could we do so without displacing food crops like corn?

Pretty much everybody from all sorts of political persuasions is interested in those issues. And the good news is that researchers – and farmers with a vision, too – are hard at work laboring on new uses of an ancient crop plant called Camelina. Also known as “false flax,” it’s a wispy plant in the same group as mustard and Canola.

There are two impressive things about Camelina. Its seeds contain a lot of oil that’s liberated by crushing – and the more oil the better from the fuel point of view. Better still, Camelina can be grown on pretty lousy soil – either areas where no crops will grow well or at times that soil may otherwise be left fallow by farmers in dryland regions of our country.

Score two big ones for Camelina.

Archeologists say that Camelina has been grown by people for several thousand years. You can eat Camelina oil, which has a lot of omega-3 fatty acids and antioxidants. Camelina was grown through the 1930s in Eastern Europe where its oil was used in lamps and the meal left-over after crushing the seeds was fed to livestock. In short, it has been a pretty durable friend of ours, as crops go – likely an original biofuel, you could say, and one that only recently fell fully out of use.

Today researchers are investigating bringing back Camelina because it has some highly valuable properties for something much more modern than lamp oil. With some processing, Camelina oil can be used in jet engines. It’s a “drop in” fuel, meaning it functions just like traditional jet fuel. Blended with petroleum jet fuel, in fact, Camelina has already been “test driven” in jet planes.

Score a third big one for Camelina.

“This ancient crop has a great deal of new potential,” says Professor Ralph Cavalieri of Washington State University. “We think we are poised to make major contributions to biofuels with Camelina.”

But where can we grow this venerable crop in the U.S. that wouldn’t displace food crops?

Here’s an example. In eastern Montana and central Oregon and Washington, where the climate is semi-arid, wheat is often grown on a rotating basis with fallow years. During the otherwise fallow times, Camelina looks like a good crop. It can help hold soil in place compared to leaving it exposed to windstorms. And it could give farmers some income during years when they would have none otherwise.

It’s true, of course, that when you burn Camelina-based jet fuel – or corn-based ethanol or soybean-based biodiesel – you are liberating carbon dioxide, the well-known greenhouse gas. But that carbon is not ancient,

like the carbon from coal or petroleum. It's part of the life cycle, if you will, of the recent history of the planet. The worry about global warming rests on our liberation of ancient carbon, the material that upsets the balance of what's in the atmosphere today.

There are many details yet to be worked out for Camelina, and much work yet to do to see if it all makes sense in economic terms on a large scale. But it looks like the major international airport at Seattle-Tacoma will shortly get part of its fuel from Camelina. That's to be welcomed, especially if it helps global warming, soil conservation and the bottom line of farmers.

Still, it remains true that we cannot yet simply grow ourselves out of our dependencies on petroleum. By that I mean that the total biofuel power in the nation is a fraction of what we get from our main fluid fuels, petroleum and natural gas.

But every step we can take toward energy independence that doesn't limit our food production is clearly great news.