Title: Energy return of Vermont biodiesel

Abstract: With the rising costs of petroleum-derived fuels and fears of a near-term peak in global oil supply, interest in biofuels is surging. Several entrepreneurs throughout Vermont are now producing biodiesel on a commercial scale from waste vegetable oil or oil pressed from oilseed crops such as rapeseed, sunflower, and soy. A range of criteria must be considered to assure that biodiesel production is viable, but because biodiesel is a fuel the most important of these is the fuel's energy return, which must exceed 1:1. To assess the energy return of Vermont biodiesel, I apply life cycle analysis and input-output analysis to estimate the direct and indirect energy costs of producing biodiesel in Vermont. Energy return estimates ranged from barely above 1:1 up to 2.4:1 for different producers, with variations in farm inputs, machinery and production levels contributing to differences. Overall Vermont biodiesel producers are able to deliver a fuel with a positive energy return, and armed with a better understanding of their energy costs producers will be able to adjust their production processes and supply chains to enhance efficiency further and increase their energy returns.