



“Promote Community-Scale Bio-Diesel Enterprises in Farming Communities around Colorado”

Progress Report



August 2007

The Venture Capital project, Community-Scale Bio-Diesel Enterprises, is an integral part of our research and extension vision to liberate eastern Colorado crop producers from fossil fuel dependency and thereby secure food and feed production systems. The use of biodiesel, or straight vegetable oil, in wheat-based dryland no-till cropping systems common to eastern Colorado, can also have positive environmental impacts by decreasing CO₂ and NO_x emissions and sequestration of atmospheric carbon in soil organic matter which could contribute to reduction in greenhouse gas emissions and contribute to international efforts to mitigate global warming trends.

The Venture Capital project, Community-Scale Bio-Diesel Enterprises, which resulted in an operational model for biofuel processing was written about in the August 20, 2007 issue of the High Plains Journal (attached). Entitled “Researchers Tout Do-it-yourself Biodiesel”, it referred to demonstrations of the SID model during our annual wheat field days. The article stated, “The benefits of biodiesel have been well documented. It is simple to use, biodegradable, nontoxic and essentially free of sulfur and aromatics, the pollutants that cause smog and acid rain.”

The project to promote Community-Scale Bio-Diesel Enterprises in farming communities around Colorado started less than a year ago. Its main goal was to establish educational demonstrations about the feasibility of community-scale biodiesel facilities. During the first year of the project, the project focused on these five objectives:

1. Build SID demonstration unit.
2. Develop information/education materials and demonstration program.
3. Schedule and conduct pilot presentation.
4. Evaluate and refine presentation.
5. Identify target communities (4), schedule and give demonstrations.

The SID prototype was constructed by a team of senior engineering students at the Colorado School of Mines working with iCAST during the winter and spring of 2007. Currently SID has been moved around the state to demonstrate the feasibility of making biodiesel and potential for fuel independence. This project has held five regional outreach tours in Colorado which target communities expressing an interest in this opportunity. These demonstrations have included educational and informational presentations about the economic, environmental and public health benefits of creating a profitable biodiesel production facility in the community. The information presented is based on the feasibility reports already developed by iCAST.

1. Our first objective was to build the SID demonstration unit. This task was completed in May 2007.



Figure 1: Senior engineering students at the School of Mines who contributed to SID, May 2007

2. Our second objective was to ‘demystify’ the fallacies surrounding the use of biodiesel and straight vegetable oil (SVO) production in Colorado.
 - a. SID was first demonstrated at the Akron Centennial field day and then at each of 8 wheat field days. Survey’s were conducted of producers who participated and expressed interest in the demonstrations. So far, the current participation of the SID demonstrations is around 600 people.

Date	Location	Number of people
June 6 th	Akron	20
June 6 th	Holyoke	30
June 10 th to 14 th	9 locations within CO	300
July 26 th	Lingle WY	50
August 1 st to 4 th	WY	140
August 21 st	Akron	107
September 8 th	Fort Collins, Ag Day	?

Table 1: The SID demonstrations during the summer.

The demonstrations are considered a success due to the high level of interest generated during and after the presentations. During these presentations contacts were made and information exchanged. These first efforts have been very successful and Building Community-Scale Bio-Diesel Enterprises has gone from a dream to a near-reality.



Figure 2: iCAST Engineer, Micah Allen, giving a presentation to producers.

SID is currently installed on a small trailer parked in the Crops Testing building at Akron (see below). It can be easily pulled by a light pickup or SUV. The iCAST people have been just wonderful collaborators and are skilled and enthusiastic educators.



Figure 3: The SID on the trailer

There is a lot of excitement and dialogue about the promise of creating a community-scale biodiesel enterprise in eastern Colorado (and Wyoming).

- a. We used approximately \$7500 (first year total of two year grant for SID) to build the model and plan to use the remaining \$7500 for all of the costs of demonstration in Colorado: educational materials, travel costs for educators, etc. We used a Dept of Soil and Crops Sciences vehicle to haul SID around eastern Colorado for demonstration during the wheat field day tour.
- d. Nicolas Enjalbert, a graduate student, completed his MS degree in France, and is starting his graduate studies with Jerry Johnson on bioenergy. He will be the point person

for all of our SVO and biodiesel research and extension activities. He is an excellent educator and will contribute greatly to the Venture Capital project activities.

Our next step is to purchase and install a farm-scale oilseed crusher and biodiesel reactor. We would like to have it purchased and installed on a truck and ready to crush SVO by this coming winter. I am working with iCAST to respond to the concerns of the committee for the second (farm-scale crusher) unit, particularly about prioritizing use and a reasonable fee structure for crushing and filtering that could make it self-sustaining. We have every reason to believe that if producers can grow sufficient oilseed that they will want to order and install their own units after we have demonstrated the farm-scale unit.