

DeWitt Era-Enterprise

Soy energy plant up and crushing

By Christina Verderosa

There have been holdups and mechanical problems, but the Arkansas Soy Energy Group LLC is finally up and running, turning locally-grown soybeans into soybean oil that will eventually become biodiesel.

Plant manager Terry McCullars said this week that the plant is now at 70 percent capacity, up from 50 percent three weeks ago. When it reaches full capacity, Arkansas SoyEnergy Group will be able to crush 2 1/2 million bushels of soybeans to produce 3-3 1/2 million gallons of soy oil and 60,000 tons of soy meal per year.

McCullars described the process of extracting the soybean oil as “pretty simple.” The operation, which is completely automated, starts when the beans are dumped into a buffer tank. They go through metal grinders that break them into pieces and breaks the outside hulls.

Once the beans have gone through the de-huller, the meal feeds into the extruders. McCullars explained that these machines “take the meal and push it through smaller and smaller holes,” subjecting it to high heat and pressure. “It’s really hot material,” McCullars said. The presses then separate the meal from the oil.

The meal is taken to the cooling tower, cooled down and then sent to a storage tank or ground. Soy meal is used mostly as feed in the dairy and poultry industry. Bags of meal about the size and weight of an economy car sit along one wall of the plant.

The oil, once it is separated from the meal, is taken to tanks where it is heated and sent through a centrifuge to remove all the gums. “This further refines it,” McCullars explained. Once de-gumming is complete, the oil is taken to storage tanks.

Although machines do almost all the work, people are constantly monitoring the process. In the control room, Tim Dillion switches back and forth on the computer screen to check out every step in the process.

“We have views from all levels,” McCullars said. The system will show if any of the levels in the tanks get too high or too low or if there is any other problem with the system. “An alarm goes off if something shuts down,” McCullars said.

Storage capacity is very important in such an operation, and there’s plenty of it at the

plant. There is room for 360,000 bushels of soybeans. Six 25,000-gallon tanks hold the finished soybean oil and B-100.

There is also a drier facility for the beans before they go through the crusher. "Most of the beans come in at 13 percent moisture," McCullars said. However, the ideal level for crushing them is about 10.5 percent.

Arkansas Secretary of Agriculture Richard Bell described the DeWitt plant as a "closed loop." McCullars said that is an accurate description. "We're the first to take soybeans from the farmer and put fuel back in his tank."

Arkansas Soy Energy Group is buying most of its soybeans within a 30-50 mile radius of the plant. They're also hiring local people.

"We've hired all local people, including farmers who have had to leave farming," McCullars said. The plant has 13 employees so far and could go up to 18 or 20.

The cost of regular diesel has skyrocketed lately, but so has the price of soybeans. McCullars said this complicates business, but isn't a huge problem. "It costs more to buy inventory," he said, "but [soy diesel] is still competitive with regular diesel."

Hopefully, this will bring more demand for Arkansas Soy Energy Group's products. "I'm hoping we'll start seeing an influx of diesel cars," McCullars said.

As for the farmers, "you can run equipment with soy diesel up to B-20," according to John Deere specifications, but most equipment will operate on B-100 [100-percent soy diesel]," McCullars said.

Farmers who want to switch to soy diesel also need to take some precautions with their tanks. McCullars explained that petroleum products tend to leave behind sludge in tanks, but the "lubricity" of B-100 "will break all that free." Farmers should clean out their tanks before filling them with soy diesel, he said.

Transporting soy diesel is also more complicated than moving regular petroleum diesel. Unlike ethanol, McCullars said soy diesel can be transported through pipelines, although, like ethanol, it tends to be more corrosive, especially to some rubber seals. At the DeWitt plant, the products "come in by truck and leave by truck," he said.

However, the plant will not have to worry much right now about providing that transportation. Currently, "we're selling the majority of our products through brokers," McCullars said, "so they come and get it." The beans are delivered by the farmers "who have their own trucks."

Currently, the plant only produces soy oil, which must taken to a refinery and "go through a reaction phase" to be turned into soy diesel, McCullars said. But construction on a refining facility has already gotten underway at the DeWitt plant.

"We hope that will completed for February 2008," he said.