

GROW IT. BURN IT. GO



FAST



Brent Hajek uses what he grows to record 252 mile per hour run with E85 Mustang Cobra Jet. Now he sets his sites on 300 mph. **By Dan Miller**

Who says farming is slow? Not Brent Hajek. Cutting-edge science push this farmer's yields ever higher. But it is his crops that give shape to his passion—racing. Powered by E85 corn ethanol and built with soybean-based parts, Hajek's 2010 Ford Mustang FR500C is being readied to tackle the land speed record early this month at Utah's Bonneville Salt Flats. Later this fall, Hajek will fire up his 1,100 ponies again in search of the track record at Talladega Superspeedway in Alabama.

"Anyone can set land speed records with gasoline," Hajek says. "But we wanted to do something weird." Teamed with Ford Racing, Hajek and his Hajek Motorsports team have assembled a 2010, limited production Mustang Cobra Jet that is becoming a high-speed advertisement for farming's new-uses ingenuity.

If all goes as he hopes, this 1,100 horsepower Mustang will hit 300 miles per hour before deploying its chute at the end of Bonneville's famed five-mile course. The record-attempting run will be powered by Rockett Brand's 112-octane, E85 racing fuel in a Mustang sporting soy-based foam seating, body panels and paint. "This is what you call a green car. And it's a farmer that's doing it," boasts Hajek, adding that this is the part of the project that indeed might be called wierd.

Hajek, an Ames, OK wheat, corn, soybean farmer with a nationwide reputation for winning National Hot Rod Association races, is turning heads by showing how well his Mustang runs on the crops he grows. "I saw all these signs, 'No ethanol in our gas.' So I thought, 'we'll just have to show these boys how it runs,'" Hajek says. "You think [ethanol] hurts your performance?" he says.



PHOTOS: JACK QUIRK - KJ PRODUCTIONS



Danny Thompson, left, drove a limited production 2008 FR500C Mustang to 252 miles per hour at Bonneville Salt Flats in Utah.

“Try beating us.”

Last fall, driver Danny Thompson (son of the legendary racer, inventor and tire manufacturer Mickey Thompson), pushed a Hajek Cobra Jet to 252.78 mph at Bonneville.

Then this spring the same car, driven this time by NASCAR racer Bill Elliott, topped 174 miles per hour at the high-banked Talladega SuperSpeedway. The mark established a track record for an E85-powered car. Elliott set the track record there in 1987 during a NASCAR qualifying lap of more than 212 mph. Hajek has his sites set on that number in a run planned for several weeks from now.

With his speed records, Hajek has discovered a rare sweetspot in the farming world, the point where the promotion of his farming craft and his racing passion intersect. And, he is excited to be there. “I know there are combines out there with [soybean-based panels],” Hajek says. “But what do they do, four miles per hour? I’m going 252. That attracts attention.”

Turns out too, that what Hajek is doing isn’t so “weird,” after all. He may be a highly visible promoter of new uses for crops, but the manufacturer of his car, Ford, is up to its gear shift in crop new uses research. The automobile, it also turns out, is a great, big platform for new uses applications.

“We rarely get an opportunity to do something this crazy,” says Deborah Mielewski, Technical Leader of Plastics Research for Ford Motor Company of her teams work with Hajek. His Mustang has given Mielewski and Ford the opportunity to promote crop new uses research and the products they have been developing.

Ford figures, that with all the potential applications for soybeans in its vehicle lines, it could theoretically use 844 million bushels of soybeans annually.

Ford began its “new uses” quest with automobile seats. Car foam is typically made wholly from petroleum-based chemicals. Ford and others found a way to replace about 5% of that petroleum with soybean oil. By the end of the 2009 model year, a million Ford vehicles contained soy

RUN ON CORN, BUILT WITH

Here’s a look at market potential for corn, soybeans and other cultivated plants that are or may be used in automobile production.

E85. There is ongoing doubt among some about E85’s (85% ethanol, 15% gasoline) performance. Brent Hajek, whose 5.4 L Mustang tested at 1,100 horsepower on E85, did little to alter the car’s engine—he installed larger injectors and a larger throttle body. Eight million vehicles can run on the E85 sold today at 2,200 gas stations. By the way, Hajek plans to build an ethanol distillation plant on his farm this winter.

Market: 5.5 bln bu corn (by 2022).

Soy Foam: Soy foam products in cars are moving beyond the seat to other padded area in the car. Ford has found a way to produce soy foam with 40% soybean oil.

Market: 10 mln bu of soybeans.

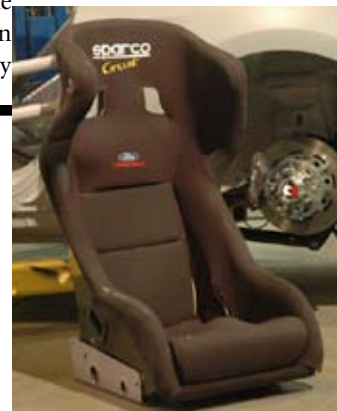
Soy Resins: Used in production of car panels, hoods and other parts.

Market: 100 mln bu soybeans.

Natural fibers: Hemp, flax, kenaf, jute, corn, sugarcane replace fiber glass to reinforce composite panels and plastics.

Market: Developing

Plastics: Replacing petroleum-based plastics with parts derived from sugarcane, corn, sugarbeets and



foam seats. In its 2008 Mustang alone, Ford used 2.2 million pounds of soy foam—that’s 850,000 bushels of beans. More recently, Ford announced it had developed a process that increases the soybean content in its foam to 40%.

Soy foam is currently used in Ford’s automobile seats. It is expanding its use to the headliner—the fabric with foam backing over your head—in 2010 Escape and Mariner. Ford is also looking at how to use it in arm and head rests.

Toyota, John Deere and CaseIH are using soy foam in their equipment, as well.

“Soy is a very green, renewable resource,” Mielewski says. “Using a soy-based foam gives us the opportunity to conserve natural resources and reduce our environmental footprint.” Ford is using a million pounds of soybean oil a year. That’s equivalent to removing 5.3 million pounds of carbon dioxide from the air.

The foam market is huge, some 3 billion pounds in the U.S., 9 billion pounds worldwide. The United Soybean Board figures soybeans can reasonably take 20% of that market or 45 million bushels.

Plastics are parts of the car where soybeans are becoming ever more present. Every car has about 300 pounds of plastic found. Interestingly, early Ford models contained 60 pounds of soybeans in paint and molded plastics. Today,

not so much.

The front panels on Hajek’s Mustang are a combination of soy-resin and hemp, it replacing fiber glass. This cut the weight of the panels by 30%. If soybean resin captured the entire thermoset composites market, that demand would take 100 million bushels of beans.

Deere and Case have added soy-based composite panels to some of its equipment lines (Case figures it cut 400 pounds off its 2009 Axial-Flow combine family, Deere includes 285 pounds of soy composite on every combine).

And there are other crops making their way into Ford labs. It is working with wheat straw to reinforce its plastic interior applications. The manufacturer is also looking at corn, sugar cane and switch grass from which to make plastic parts. Soy flour and meal can be used in various plastics and rubber applications as fillers.

Materials derived from crops could be used in nearly every application in a car, Mielewski explains. That includes plastic wraps that protect new cars during shipment to high performance parts.



6

.....Cont. from story above.....

And better, these aren’t parts that will sit in landfills for hundreds of years.

“Who thinks about plastics being good,” says Ford’s Mielewski. But plastics is one place on the car where auto manufacturing can have a big impact, she says.

The environmental footprint of a car is more than miles per gallon. The car is a large consumer of petroleum products from the engine to the foams, plastics and composites forming the vehicle -based plastics, a technology that’s been around for 60 years.

“These are the places where alternatives make sense,” Mielewski says.

The list is growing.

Waiting for info. about paint from BASF.

Here are videos showing Hajek’s Mustang run at Bonneville and Talladega: www.youtube.com/hajekmotorsports

withgrass.

Market: Developing

Cont.....from “Run on Corn, Built with beans

Rubber: Use soybean fillers—flour and meal—in door seals, floor mats, gaskets and splash shields.

Market: Developing

Paint: Demand for automotive and truck paint approaching 70 million gallons a year.

Market: Developing