



Jun 18, 2013 00:00 BST

Using nature's energy to harvest crops

A Northumbria University student's design for a new tractor could bring down the cost of food production in the future.

Charlie French, a final year Transportation Design student, has designed a tractor that can use a variety of energy sources to enable it to use green technology as it becomes available – thereby reducing the impact of rising fuel costs on the farming industry.

His design of a tractor incorporates a diesel generator which can be replaced by hydrogen fuel cell technology once renewable energy sources are in place.

The fuel cell works by mixing hydrogen and air within an assembly of advanced materials. This generates electricity without combustion, and the only emissions are pure water. The hydrogen is produced through the process of electrolysis, which utilises renewable energy sources such as solar panels or wind turbines installed on the farm to produce the electricity required for this process.

Charlie, 22, originally from Greater Manchester, said: “As fuel costs increase, so does the cost of producing food through automated farming methods. This project aims to create a tractor concept which uses hydrogen fuel cell technology to break this link. This vehicle concept fits within a farm based fuel infrastructure capable of generating the hydrogen through the installation of renewable energy sources.

“To ensure the tractor is a feasible investment in the current market, I envisage a diesel generator being used as an initial form of propulsion, linked to an electric drivetrain. Once the sustainable energy solutions, primarily solar panels, wind turbines, and an electrolysis system are installed, the generator can be exchanged for a hydrogen fuel cell.”

The tractor is designed to last up to 15 years longer than a diesel equivalent, offsetting the initial higher investment.

Date posted: June 18, 2013

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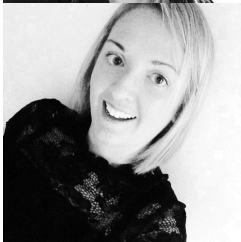


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