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**Student hometowns are:**

Wyoming - Cheyenne, Greybull

South Dakota – Rapid City

**Sadanand Dhekney pronounced “Suh dawn’end Dek’nee**

**Team photo available**

**UW professor boost helps Sheridan College team advance to national Innovation Challenge**

**finals**

Revvng up the genetic horsepower of algae to gush lipids for use as biofuel has propelled four Sheridan College students onto the national stage in Washington, D.C.

Hannah Shafer, Rapid City, S.D., Ceirra Carlson, Greybull, and sisters Hannah and Paige Jernigan of Cheyenne are one of 10 teams from community colleges across the nation advancing to the Innovation Boot Camp in June, the final competition of the National Science Foundation's Innovation Challenge.

The students use the laboratories in the University of Wyoming Sheridan Research and Extension (R&E) Center and draw upon the research expertise of Sadanand Dhekney, who holds the E.A. Whitney Professorship in Agriculture at the college.

The students proposed to genetically engineer algae for enhanced lipid production. They're figuring out how to replace the original genes – yank out wimpy stock genes, insert turbo-charged replacements – and turn the algae into lipid megaproducers.

Lipids are molecules that contain hydrocarbons and make up the building blocks of the structure and function of living cells. Examples include fats, oils and waxes.

“We're excited we made it all this way with this little idea that has come so far from the beginning,” said Hannah Jernigan. “We've thoroughly enjoyed learning what we have. It's totally new, and we've grown leaps and bounds from where we were a couple months ago.”

Sheridan College instructor Rob Milne had mentioned the National Science Foundation's Innovation Challenge to his general chemistry class last November. The challenge thrusts research into the traditional teaching roles of community colleges.

Shafer wanted to initiate a project, and, once it seemed she and the other students wanted to pursue algae lipid production, Milne saw a good connection with Dhekney at the R&E center.

Undergraduate research is encouraged at the college, but the reality is facilities, time and equipment are limited.

“The initial motivation has to come from the students,” said Milne. “The nice part is, these students are exceptionally motivated.”

And so the students took the five-minute walk from their science center to the R&E center to visit Dhekney. The assistant professor in the Department of Plant Sciences at UW has been nationally recognized for his grapevine research but knew nothing about algae.

The state of Wyoming matched funding from Whitney Benefits to create the E.A. Whitney Professorship in Agriculture position, designed to implement at Sheridan College an enhanced degree completion program within UW's agroecology curriculum and to teach selected courses each semester.

“The students had this idea in mind, increasing lipid production in algae, but had no clue how they were going to do it,” Dhekney recalls.

Dhekney threw out ideas, and showed them research by Steve Herbert, the former head of the plant sciences department in the College of Agriculture and Natural Resources.

“This is like a Ph.D. project,” said Dhekney. “These kids are pretty ambitious. They did not have anyone to show them the way or have a place to do it. We don’t work with algae, but we have everything in our lab to work with in the research center.”

Dhekney has mentored students for more than 11 years.

“When a student comes to me, I never turn them down,” he said. “If it’s something not in my area of expertise, I’ll give some type of guidance or mentoring that can take them to the next level. With the Sheridan College students, I knew I could give them a place to work, the necessary supplies and the chemicals to work.”

That collaboration, said Jernigan, has proven invaluable.

“I’d say that was the most important part,” she noted. “We were coming here with very little knowledge. He didn’t have to accept our project or help us, but he was super excited about it, he brought us in and even took his personal time to research and find out more about it and try and help us.”

Each student member of the first-place team at the boot camp receives \$3,000, second-place student team members receive \$2,000 each and third-place student team members receive \$1,000 each.

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