



## Biodiesel Researchers From Egypt Visit UNH

Contact: [Debra JohnyBear](#)  
603-862-3102  
UNH College of Engineering and Physical Sciences

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DURHAM, N.H. – During this season of reunions, the reunion is especially sweet when discovering your acquaintances are excelling in what they do. Consider the bonus of networking their progress with that of your own. The possibilities are far-reaching and in this story span from Durham to Cairo, Egypt. From June 25-29, six researchers from the National Research Center (NRC) in Cairo met with UNH chemical engineering professor Ihab Farag in his biodiesel lab reuniting in their effort to introduce biodiesel technology into Egypt. NRC is one of the largest and most credible research centers in the Middle East.

In 2004 Farag, director and founder of the UNH Biodiesel Group, was awarded a three-year grant from the US-Egypt Science and Technology Program (part of U.S. Agency for International Development). The grant/project involved working with NRC on introducing biodiesel, a renewable and environmentally friendly fuel alternative to petroleum diesel into Egypt. The project focuses on the technical and economic feasibility of producing biodiesel from a non-edible plant (Jatropha) that can be grown in poor or damaged soil in Egypt, and the possibility of expanding this into large scale production. The main benefits of this are:

- Greening the desert, by growing Jatropha in desert area
- Utilizing municipal wastewater. Jatropha is being irrigated by municipal wastewater
- Production of local home-grown fuel (biodiesel) that can be used locally or exported
- Creating jobs that benefit local and rural economy

Professors Nahed Attia, Hammam El Abd, Guzine ElDiwani, Salwa Ismail Hawash, and Shadia Ragheb Tawfik are each members of the chemical engineering and pilot plant unit of NRC, and Ferial Zaher is of the NRC Oil and Fat department. They have been proactive in working with UNH on introducing the biodiesel technology into Egypt. With exception of Attia (who is equivalent to an assistant professor), they all have more than 20 years of experience in research, student supervision and project execution, and working with local industry.

Egyptian project director ElDiwani said, "This is my second trip to UNH. Two years ago UNH biodiesel research was still in the lab-scale stage. Today the Biodiesel Lab reflects Dr. Farag's biodiesel achievements which are in synch with the increasing interest in the U.S. and worldwide. Dr. Farag's high-bay biodiesel lab is now equipped with an excellent pilot-scale facility to process biodiesel from waste vegetable oil. Realizing the importance of biodiesel feedstock Dr. Farag is conducting pioneering research on the production of biodiesel from algae. One of the highlights of this trip was touring campus in the biodiesel-powered Wildcat bus. Another was witnessing democracy in action while at the State House. Both the House

and the Senate were in session.”

Dr. Tawfik said, “It has indeed been a productive and rewarding visit. We have been acknowledged by the Senate, welcomed by the Honorable Governor Lynch, and additionally welcomed by both UNH’s outgoing interim president Bonnie Newman and new president Mark Huddelson. We have met with the U.S. Environmental Protection Agency in Boston to learn about environmental issues, as well as with the New Hampshire Department of Environmental Services and Air Resources Division. Likewise we visited the International Trade Resource Center and Pease Development Center in Newington. In all, good relations have been made in our struggle for alternative energy sources and a greener world. Relations which we hope, in time, will only become stronger.”

DOWNLOADABLE HIGH RESOLUTION PHOTOS AND CAPTIONS:

[http://www.ceps.unh.edu/images/egyptians\\_bus.jpg](http://www.ceps.unh.edu/images/egyptians_bus.jpg)

One of the highlights of this trip was touring campus in the biodiesel powered Wildcat bus. L-R, UNH Chemical Engineering professor, Ihab Farag, Egyptian renewable fuel researchers: Drs. Guzine EIDIwani, Salwa Ismail Hawash, and Hammam El Abd.

[http://www.ceps.unh.edu/images/egyptians\\_GovLynch.jpg](http://www.ceps.unh.edu/images/egyptians_GovLynch.jpg)

Pictured with Governor Lynch, Wednesday, June 27, from left to right are: NH DES Tim Drew, Egyptian delegates, Drs. Nahed Attia, Salwa Hawash, and Guzine EIDIwani, Governor John Lynch, Egyptian delegates, Drs. Shadia Tawfik, Ferial Zaher, Hammam El Abd, and UNH chemical engineering professor Ihab Farag.

[http://www.ceps.unh.edu/images/egyptian\\_researchers.jpg](http://www.ceps.unh.edu/images/egyptian_researchers.jpg)

Monday, June 25, learning about environmental issues and biodiesel regulations from a Federal perspective from the Environmental Protection Agency in Boston. L-R, Egyptian delegates: Drs. Nahed Attia, Shadia Ragheb Tawfik, Salwa Ismail Hawash, Ferial Zaher and Guzine EIDIwani.

[http://www.ceps.unh.edu/images/egyptians\\_lab.jpg](http://www.ceps.unh.edu/images/egyptians_lab.jpg)

Friday, June 29, Physics laboratory manager Mike Briggs shows how the high-bay Biodiesel Lab is now equipped with an excellent pilot-scale facility to process biodiesel from waste vegetable oil. L-R, Mike Briggs, Egyptian researchers: Drs. Shadia Ragheb Tawfik, Ferial Zaher and Hamman El Abd.

