

## Researchers work in Ghana to create biofuels from native tree seeds

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From left to right, top to bottom the seeds are: *Delonix regia*, *Jatropha curcas*, *Ricinus communis*, *Azadirachta indica* and *Balanites aegyptiaca*. Credit: Kansas State University Division of Biology

A short rainy season and desertification make growing food in northern Ghana difficult enough. It doesn't help that in this western African country there is little fuel available to power tractors for planting crops or to power grain milling.

Researchers at Kansas State University think that the [seeds](#) from some native [trees](#) may be able to help.

K-State biologists are working with a researcher in [Ghana](#) to create biodiesel from the seeds of trees that are common and well adapted to the climate of northern Ghana. Walter Kpikpi from the University for

Development Studies, Navrongo Campus, in Ghana visited K-State in November 2008 with funding from K-State's African Studies Center. He is leading a project that will make biodiesel for local farmers in Ghana from seeds collected by local farmers.

Funded by K-State's African Studies Center, K-State biologists analyzed the [oil content](#) of four common tree species in Ghana. Ariel Burns, research technician in K-State's Division of Biology, was joined by Richard Jeannotte, research associate in biology, and Ruth Welti, professor of biology. They found that two tree species, *Jatropha curcas* and *Azadirachta indica* -- also known as neem -- have seeds with high oil content. They now are finalizing the analysis of the lipids in the seeds.

Burns will present the work March 30 at K-State's African Issues Symposium: Food Security, Environmental Sustainability and Human Health.

Proposing that *Jatropha curcas* and *Azadirachta indica* seeds are best suited for biofuels, Kpikpi's project envisions cultivating these trees specifically for biodiesel production on land that isn't suitable to grow food. The project anticipates economic opportunities for people in Ghana by producing this type of biodiesel.

Wenqiao "Wayne" Yuan, K-State assistant professor of biological and agricultural engineering, has expertise in biodiesel reactor design and conversion. When funding is available for the pilot-scale biodiesel plant in Ghana, Yuan has offered to work with Kpikpi to create the facility to process tree seeds and convert them into biodiesel. The plant would include an oil extraction device and biodiesel reactor, Yuan said.

Source: Kansas State University

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