**IA-0266 Getting it Out There Spring 2014**

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We have recently received funding from the Bill and Melinda Gates Foundation to further our work on a low cost pearl millet thresher intended for use by small shareholder farmers in sub-Saharan Africa. Students, faculty, and visiting professionals will work together to produce at least 3 thresher prototypes suitable for extended field-testing during the latter half of 2014. Design mentors will include Mike Augspurger [www.oneoffhandcycle.com](http://www.oneoffhandcycle.com), Roo Trimble [www.roopod.com](http://www.roopod.com), Bob Cann, Aaron Cantrell and Jake Horsey. Students in this class have a great opportunity to work as part of skilled teams with focused goals.

Highly motivated students interested in applied design, anthropology and agriculture are encouraged to consider taking this class. We are looking for resourceful people who want to design and build prototypes, and importantly – help evaluate if this design concept is worthwhile, and to document and quantify the work we do.

We will learn as much as we can about pearl millet and the people who grow and consume it. We will educate ourselves about how pearl millet is used around the world and its potential benefits, as climates grow hotter and water more precious.

The class is scheduled to meet on Mondays and Wednesdays from 10:30 – 11:50, with an extended lab on most Mondays from 9 – 12. Students should plan on spending 5 – 10 hours a week outside of scheduled class.

**About Pearl Millet**

Pearl millet is a highly nutritious staple cereal grown and consumed in parts of sub-Saharan Africa. The plant requires no irrigation and is grown in the harshest of conditions; it can grow in locations that will not support corn or sorghum. Much of the grain grown in sub-Saharan Africa is produced and consumed by millions of people who grow it on small farms. Pearl millet grows on a long stalk called a panicle, with edible grains held



tightly within fibrous florets that grow around a central stem to form the panicle. In many regions of Africa, family farmers hand-harvest and store panicles in a drying hut. It is a labor-intensive process to thresh and separate the edible grains from the panicle. Practices vary by region and ethnicity; nevertheless women commonly do the work of extracting grain by hand from the pearl millet panicles with repeated cycles of pounding and winnowing.

Depending upon resources, an alternative method to hand threshing may include driving a tractor or car over the stalks. The pulverized grain is swept up and winnowed, but the millet is contaminated with sand and small stones, and broken grains that release oil and quickly turn rancid.

Our innovation uses a sharp force to remove just the edible grains from the stalk while leaving the rest of the panicle intact, largely eliminating the need to winnow while producing clean unbroken grain. There can be many design variations to the machine that removes the grains of millet from the stalk. In prototyping we have successfully used hardware cloth, bicycle spokes, spoke nuts inside a bicycle wheel rim, and a “cheese grater” surface to generate the force. The device can be human powered or motorized, and can be adapted to suit local customs and traditions.

**How to Apply:**

This is an instructor permission class. In accepting students, we seek to create several work groups made up of people with complimentary skills and interests. In order to be considered, please email dcohn@hampshire.edu with a response to the following questions:

Why are you interested in this class?

What particular skills, strengths or areas of knowledge can you contribute to this project?

Answer one of the following:

We are going to need a lot more unthreshed pearl millet to test the threshers we build. How might you go about acquiring a supply of pearl millet panicles for this class?

How would you look for people who are already familiar with the process of growing and threshing pearl millet?

Please respond by the end of the day, Tuesday January 14th. Decisions will be made and announced by Friday January 17th.