2013 CCE Summer Internships

CATEGORY ARCHIVES: DEVELOPMENT OF WILLOW BIOENERGY CROP OUTREACH AND EDUCATIONAL MATERIALS

Last week!

Posted on **July 24, 2013** by **Lauren**

Hi everyone! This is Lauren still at the shrub willow station in Geneva, NY, with Larry Smart. We are wrapping up quite a few projects here and starting still more new ones – plant work is so interesting because most of it is so long-term, that I will probably never know the results of the experimental nursery beds we planted yesterday, or the outcome of the yield trials I've been photographing.

Our two summer scholars are working hard on getting their results in, and I've been helping out with some visual aid for their posters, which is cool to see. Their results have been good which is heartening for the lab. Here's one of them and his work with shrub willow pests:

this is pretty cool, what's he done. we're in a freezer where the bugs have been basically made inert by the cold and some CO2. he's sorting them into little containers so he can set them loose on different shrub willow cultivars and see which ones they like to eat when they are active again.

Other projects I've been doing include finally getting to see applications of the changes on the website – the server is finally switched over. Cheers for dreamweaver! and creating a survey for people to give their opinions on what the newest cultivar should be named. Everyone reading this should take the survey too, check it out on http://willow.cals.cornell.edu/ it's linked on the right under "hot topics".

I'll submit probably one or two more posts before leaving for the summer. Cheers

Posted in **Development of Willow Bioenergy Crop Outreach and Educational Materials**

Willsboro trip!

Posted on **July 12, 2013** by **Lauren**

Hi all,

Posting again today because I just got back from an awesome field experience in Willsboro, NY – about a 5 hr drive from the station in Geneva. It's on the edge of the Adirondacks, which were absolutely beautiful to see, and the weather was fantastic. I went with Eric, one of the PhD students here, to Cornell's WIllsboro farm, which is basically a conglomeration of experimental plots of all kinds. There was willow, of course, and switchgrass, and grape vines and wheat and tomato plots. Eric went to give a short presentation on the willow plot and the benefits of planting shrub willow to a group of about 50 who came from all over. He did a great presenting job! I filmed it and am working on editing (wind noise…not my favorite).

This year has been very wet, and most of the willow were soaked through. We didn't plant any more because it was too wet and soggy, and dragging a machine through there would've been useless. However, Eric was overall satisfied with how the plants were growing – he'll probably head up back in the fall, but I'll be back in school at that point.

This weekend I'm going to wage war against this video and get rid of the background wind – it'll be a great presentation without it.

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Week 4!

Posted on **July 8, 2013** by **Lauren**

a cool photo I took a few days ago capturing one of shrub willow's biggest pests, the leaf sawfly larvae! These larvae are deposited onto the shrub willow leaves by their mothers and then left there to feed. They chew the leaf down to the stem and are literally everywhere at this time in the season.

We went out to take these photos for John's project, as he is trying to link willow consumption and pest preferences.

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Raincheck

Posted on **July 2, 2013** by **Lauren**

Hi everyone! Hope you all have had awesome weeks. This week makes #4 of my foray into the world of shrub willow and Larry Smart's agricultural experiment lab. Unsurprisingly, upstate NY weather has thrown everyone for a curve and kept us mostly indoors with irritatingly on-and-off rain. One of the summer scholars working here is using an instrument in the field that can't be used on wet leaves, so she's been taking full advantage of the periodic dry periods.

I've been following her and a few other of the team members around, cradling the best camera I've ever had like a baby. It's awesome seeing their work and getting to document it; they need pictures for their final presentations at the end of the summer. One of them is studying the preference of various shrub willow pests on different cultivars, and the other is looking at possible connections between chlorophyll and nitrogen content of leaves at different

heights of the plant.

I've also been working tentatively on revamping the Willowpedia website, which is outdated and being switched to a new server very shortly, and finishing up a fact sheet for a field day in Willsboro next week which I and a few others will be attending.

Hope everyone has an awesome fourth of July!

Posted in **Development of Willow Bioenergy Crop Outreach and Educational Materials**

Changing the world one plant at a time

Posted on **June 25, 2013** by **Lauren**

Hi everyone! My name is Lauren Frazier and I am the CCE intern for Professor Larry Smart at the Agricultural Experiment Station in Geneva, NY. It's my third Tuesday here and I'm admittedly a bit late on this blogging update, but here's a quick summary of my time so far.

Larry and his team work with a plant that I'd never encountered before coming here – the shrub willow. No, it does not look like the weeping willow tree in your front yard. They are related, but the shrubs grow to much shorter heights (15-25 ft), resprout after coppicing, and have many more stems. The purpose of their studies is to examine, test, and breed this shrub willow as a biomass crop. Biofuel–in my opinion, a life- and world-saver in the field of energy and fuel. Corn is currently the world's leading crop in producing biofuel, but the shrub willow, if commercially developed and economically streamlined, would become superior by far. It grows on marginal (read: useless for anything else) land, it requires low maintenance, it lasts for some 20 years after being planted. Switchgrass is another plant the team works with and has similar characteristics.

The only problem in the fairy-tale existence of these biomass crops is that it now can only be feasibly using for heat and electricity. As a fuel source, the technology has not yet surfaced to convert lignocellulosic material (which is basically biomass) into enough ethanol to make it worthwhile. Corn ethanol, on the other hand, is an ancient practice that, today, garners about 30 billion liters worth' annually.

So until that happy day comes, we in Larry Smart's lab are biding time and testing as many strains of shrub willow possible to find the most reliant, disease- and pest-resistent, longest-lastest, and best photosynthetic genotype possible. I have been fortunate enough in the past two weeks to have been able to watch many of this work in high-speed action.

Last week, for instance, the whole team took to the field to plant a quarter-mile field, 6 rows, of test plants for Fred Gouker, a PhD candidate of Plant Breeding and Genetics at Cornell. He explained the process of planting every

genotype, giving every strain a chance in the field, instead of eliminating the weaker-looking plants in the greenhouse as the practice used to entail.

Besides the manual labor, I have also spent a lot of time organizing and editing Willowpedia's fact sheets. Larry wanted to change the format of Willowpedia's bible, The Willow Grower's Handbook, into concise, one-page fact sheets that are easier to read and manage. I have been transferring the information from the handbook into these fact sheets and just finished this morning.

So now I am moving onto documentations! The website must be edited, photographs must be taken, and projects begun. Hope you enjoyed this post, I'll be back later.

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