2024 multistate meeting: climate change and weed emergence

Carri will send the proposal to Thierry

Carolyn will send the design around

We will buy a couple rolls of fiberglass

We will play with building OTCs

This summer, try measuring seed predation and temperature variation between sites.

New coordinator will set up a meeting in February to hammer out the protocol for predation.

Use the data loggers for temp from last year.

Tierry will bring the USDA sensors to the Expo and hand them off to a Cornell person.

Toni, Carolyn, Thierry, Carri

Notes for Rich, Vipan, and Mark

Carolyn will have her technician David Wong send out the design. Her lab is continually updating the design; this year’s have survived a big windstorm in NH. The biggest pain is getting in and out to do the weed counts. For the AFRI they have 32, which is a bigger pain. The control will essentially be our current experiment.

It would be good to use the data loggers for temperature in and out of the plots. Carolyn will test how much plot to plot variability there is in her current expt. The OTCs also cause variation in snow cover. Carolyn will tell us how much space is needed – maybe 15’ between each plot. They’re 1m^2 plots. They need to be randomized, so you can’t put the OTCs all together. Thierry has one data logger and two probes. Carolyn was able to find extension wires that went out 50’.

Always wear gloves; the fiberglass shards can get in your skin. Especially whoever is doing construction. Mask if you’re cutting. If Cornell builds them, can we get them to Thierry and Mark? Thierry is in Geneva in March and May; they may or may not fit in a truck, but a van works. He needs one for the robot anyway. Maybe don’t assemble them if using a truck. It might make sense to only partial assemble and finish assembly at the final destination.

Do we need to track cloud cover? Carolyn’s lab has daily solar radiation. Cornell needs to check if we have that; Thierry has a solar radiation meter and can add that to the logger. It’s a Likor. Ideally, each site would have four loggers; two in control, 2 in OTCs. HOBOs for air temperature? Probably not, the models are relying on soil temp. With a crop, .4C increase; without, .5C. That’s in cloudy climate. But Thierry is in a sunny place with sandy loam. So if we have enough money for sensors or for hobos in a solar shield (AccuRight makes some for $13/ea, or put a bucket over them – we would prefer the shields).

The biggest cost is the fiberglass.

It would be great to look at how OTCs affect flower timing/seed set in a future project. Are the weeds setting seed and shattering before crop harvest? Carolyn is presenting on seed viability on Thursday.

Thierry works on cranberries; with climate change, there’s a lot more sunburn that leads to rot. Can we still grow cranberries in NJ in 20-30yrs? One of his colleagues is putting temp probes in a 3-d printed cranberries, and seeing temps up to 100F.

Does Thierry want to start this year? No support from Cornell. Let’s start together next year. Let’s build a prototype to make sure we’re familiar with it? 12 panels per fiberglass roll; you’d need a roll of fiberglass, then start playing with it. $655/50’ roll?

All the experiment directors gave the go-ahead for the project. The station directors are very interested; it looks good for the institutuion/USDA. Penn State isn’t interested. Some states take the money for the multistate and use salary to pay people. Carolyn needs her own Hatch independent of the multistate. Mark doesn’t get anything. It’s just Cornell and Rutgers that actually get funding in the NE.

Thierry needs to look into securing funding for his own funding. Carri will send the proposal to him.

Each site will need two rolls for the four OTCs.

Toni would like to go ahead with it; he would like to have these things and use discretionary funding. For Mark, Carolyn has ones they aren’t using; they could salvage from it to send to Mark.

Not setting up the trial this year, but getting familiar with the OTCs and working around them, maybe using them for demonstration. Maybe look at predation? Trail cam, predation study, etc. Looking for increased predation. Then we could talk about lower predation in the OTCs being due to predation.

It would be great to have a NIFA postdoc fellowship to do this. Due in fall. Everyone think about candidates who could coordinate and write up the data as well.

This year: build a couple OTCs and maybe collect some temperature data from them, to get a feel for how they do in different soils/climates. If funded, next year begin the full experiment.