Modelers Meeting

December 10, 2015

**Present:** Olivier Jolliet, Al Rotz, Ashwan Reddy, Carol Barford, Carolyn Betz, Cesar Izaurralde, Curtis Jones, Larry Chase, Quirine Ketterings, Richard Gaillard

Action items are underlined.

**NY farm paper**

Olivier is anxious to hear from Marty to see his comments on the paper. Carolyn will contact Marty.

Larry talked about a publication out of Penn State where adding 40-50 mg of something to the cow’s diet could reduce methane emissions by 30% but not affect milk production. Getting the FDA approval on that will take a long time. Larry can run his model using this new approach. It could be promising. Larry is going to write up something about this and send it to the group.

**BMPs**

Richard and Curtis weren’t aware they were supposed to run the BMPs on the Twin Birch Farm before today’s meeting. Richard suggested that the scenarios be better clarified before running the models. Curtis and Richard will talk about how to do this, especially the timing of manure application and tillage intensity. They will need to use the list of BMPs that were attached to the minutes of the last meeting. There are details of manure application in that list. Richard, Curtis, Quirine, Al and Cesar discussed some of the details of the manure application and how the different models work.

Olivier updated the details of the BMP list during the discussion. [Olivier please sent to the group.]

**Climate Data:**

Last call, we talked about whittling down the climate scenarios. Ashwan used EPIC to model 14 climate scenarios. He showed the box plot results of harvested crop N vs. Climate Scenarios (14 models). Overall, the models show there is more crop nitrogen being produced in the future. This is a proxy for productivity for the cow. The model was run for each crop. He is recommending the models being used show the low, high and medium productions in the future to narrow down the scenarios. Chris Forest (via email) doesn’t recommend narrowing it down too much. He also showed the plots that Rob Nicholas sent that plot all the models and show increase in mean temperature vs. change in precipitation. EPIC can run all of the climate scenarios, but other models may not be able to do that. Rob and Chris should be consulted.

Olivier says we should also run the productivity of the cow vs. increased temperatures, and not just rely on the crop N that Ashwan already ran. Cesar is going to go back to a previously published paper and get some more information. Olivier is suggesting we use more than three scenarios, like five. Cesar will take the lead on moving this forward.

**Results of the experimental comparison for the different models (Richard and Peter)**Richard has received data runs back from Al and Curtis. It doesn’t seem likely to get daily GHG flux daily results from IFSM. IFSM, APEX and DAYCENT were all used, but they are still waiting for results from DNDC. We need to discuss calibration between the models and the real data. Richard showed regressions of experimental data vs. the modeled results for soil temperature, volumetric soil water, N20. Curtis has produced some graphs of those results but unfortunately some of the results are not promising.

We need to decide what the next step is on the calibration. A lot of the modelers are absent today, so we need to come up a process to calibrate the models. Richard is suggesting use email to work this out, or have another call sooner. They also need results from DNDC before proceeding. Richard will contact Bill Salas. Richard was just testing the model and isn’t too worried about we will proceed.

Olivier suggested the next meeting be Jan 11, 12, 13 or 14, 15th at 1:00 Cesar, Richard and Olivier are available. Carolyn will send out a Doodle Poll.

**Foreseen publication and project productivity**

Richard said Bill Jokela is interested in knowing when the result will be published. He is concerned that his soil manure data set has not been published yet and doesn’t want to be out of sync with the modeling publications.

The modelers will invite the experimentalists to be on a conference call sometime in January. We will meet first without them the week of Jan. 11 to work out the calibration question.