**Modelers’ Meeting – June 26, 2015**

Larry Chase: coefficient for P for milk is incorrect and needs to be adjusted. Quirine and Sebastian need to weigh in on this.

Al Rotz: global warming factors for N2O and CH4 have been updated by the IPCC. We need to use the 2013 numbers. Methane is 28 and N2O is 265. Also, there isn’t an accumulation of nutrients in the barn, so the numbers shouldn’t reflect that. Olivier suggests we may drop that. Changsheng: climate data

Soil shows substantial storage using two models. IFSM also should show soils in the box. This farm has too much nitrogen on the farm. For whatever reason, there is always left over N in a lot of models. Changesheng thinks that you can have N accumulate in the soil.

Peter: remind the reader how many hectares or how many kg/h in the box so that they don’t have to remember it from the text.

Number of cows could be represented in animal units (500 kg).

Peter: Will the reviewers ask which model is right? IFSM is in the range of the others. This effort is part of a bigger study and next will be used with data set. Also, how difficult it is to do this with five models and using the same data.

Chris: Global Warming Potential – IPCC Ch. 8 Should we use 298 for N with carbon cycle feedbacks. For methane it’s 34. For comparing to previous reports, to be clear on net impacts, we should use the carbon cycle feedback numbers, unless there is a standard for the farm community. Peter thinks if we get a lot of controversy from the reviewers, we could leave this out.

Chris: The recommendation is to use the one with the full complement of science. We could put both in.

Peter: we need to show why the models are so different. Richard and Curtis may do a separate paper on this. We don’t want to go into too much detail on equations in this publication, etc.

Please send comments by Tues., June 30.

Curtis: Need a table to show the basics of each model—like mass balanced-based etc.

Paper to be submitted by the end of July

Journal – not so much in pure dairy journal, but in something different, like Agriculture Ecosystem and Environment. Scenarios paper would be more appropriate in Dairy Science or something like that. We need to ask those familiar with that journal what their opinion would be on a modeling-focused paper.

Beneficial Management Practices

Matt: started with a long list; most recent version was pared down while working with Doug Reinemann and Becky Larson on the LCA team. We want to pare it down to those that will have the biggest impact. He wants to know what the modeling team would use this list for.

Olivier: NY farm- try it with a digester. Define 10 different scenarios for the NY farm. Take the present status as a reference and then play the scenarios to see what will happen. Is this BMP document agreeable to everyone? How do we customize to the NY farm? Maybe Larry could make a proposal to develop the scenarios.

Peter: we need to understand why the models give different results and then use data to provide validation. It is premature to run the scenarios. Changsheng agrees. This paper is rather theoretical and we refer to no real data. We need to have something in between the two papers. The soil data will be available by early August; then the manure data will be available next. The cow data will not be available until the fall because the experiments are just being conducted.

Peter and Richard will take the lead on using the data and work with Carol Barford on getting the data and start on the next phase. Everyone will then be able to get going (except CNCPS). Soil data may be more focused on how manure is applied (Quirine); forage; cropping system differences, etc. The Corn CAP may have other data on crop rotations, etc., but our project is focused specifically on the dairy system.

How do we develop the scenarios using the BMP list? We could use a sub-team.

* Larry to take the lead on the feed; to make adjustment runs is very quick now that we have the base established. Should we feed more alfalfa and corn silage and how would it affect the emissions? We need to make the outputs easy to compare—be careful that outputs are in the best comparative mode.
* Changsheng to take the lead on the manure processing. Also it would be good to see about applying manure only on growing crops like they do in Denmark. This was brought up by Doug Young at the annual meeting in Chicago.
* Peter and Curtis to take the lead on soil

July 20—deadline for the next runs as outlined above.

Climate Issues –

Status: Rob – most future scenarios are completed; have input files for DAYCENT and IFSM. He needs formats for the remaining models. Please send Rob samples for the other models. Plan is to complete for future scenarios by the end of the summer. Carolyn will set up a Dropbox for this.

The preference is to run the scenarios to 2050. 1981-2050. 70 years of data. You can start the data when you want; e.g. 2041-2050 or anything you want to run. Provide high vs. low scenarios. Choose a few climate models as examples. There are 40 model simulations that could be used etc. so there are thousands of model simulations that could be run, but that wouldn’t be useful. It’s only practical to use many fewer. Chris and Rob can work with people individually to give them what they need. Chris and Rob can work with people individually to give them what they need.

Wisconsin regional case study

The dairy industry has pledged to reduce emissions by 25% by the year 2020. Use this regional case study to see how we will achieve that goal. The LCA will give statistics on the manure practices. What is the modelers’ strategy?

What are the available data on current practices? Which percentage of farms are participating in which practices? Will Ken Genskow provide that data for us? We need a place where we would be able to put that information. Matt and Carolyn will follow up with Ken.

Changsheng said something that I missed.

Chris: downscaled data will work well with what Changsheng said.

Timelines and Publications:

Jones and Gaillard – 2nd publication

Al Rotz – two publications; he can send drafts of these because these are both about the Twin Birch Farm. We don’t want to redo what he has already done. We could build on what he has done.

Curtis and Richard – why the models are different? Should this be done after the data is used? Or now? Peter will look at model comparisons and try to determine why they are different. Some could be included in Karin’s paper and some could be in a separate paper.

Regional level comparison paper will come later.

What is the policy on acknowledgements? We need to determine when to include people’s names, and also to include the scientists who provided the data. Should they be included as co-authors? We will discuss off-line.

People need to send Karin previously published papers that will be referenced in this paper.

Peter, Richard and Curtis – meet to discuss use of data, maybe by the end of July.