

**CHALLENGES AND OPPORTUNITIES IN MANAGING AGRICULTURAL OPERATIONS
FOR A LOW-CARBON ECONOMY**

July 18, 2007

West Des Moines, Iowa

On July 18, 2007, American Farmland Trust (AFT), Natural Resources Defense Council (NRDC) and Farm Foundation held a listening session with 27 Iowa farmers to talk about their potential role in helping the United States evolve into a low carbon economy. The Iowa Farm Bureau Federation (IFBF) hosted the meeting in West Des Moines with Dr. Kitty Smith, Administrator of the U.S. Department of Agriculture's Economic Research Service, facilitating. IFBF started working with Chicago Climate Exchange in 2003 to collect carbon credits from farmers and recently formed a new company, AgraGate, to continue these efforts.

Background

The emission of carbon dioxide and other heat-trapping gases within the United States and across the globe have already or will soon go from being voluntarily managed to being regulated by national and international laws. United States power companies participating in the Northeast's Regional Greenhouse Gas Initiative, industries regulated under California's Global Warming Solutions Act, and countries participating in the Kyoto Protocol are already under a mandatory program. The U.S. Supreme Court recently ruled carbon dioxide a pollutant under the Clean Air Act and instructed EPA to regulate them accordingly. And Congress is considering bills to control greenhouse gas emissions (GHG), most of which are multi-sector and include provisions for a national limit, long-term declines and the development of a carbon trading system for the lowest cost reductions. The economic incentives for farmers and landowners will increase as a low-carbon economy puts a market value on land-management practices that store carbon, reduce GHG emissions and/or displace emissions. Such practices include:

- Producing crops that can be converted to biofuels to displace high carbon fossil fuels;
- Providing sites for wind turbines and photovoltaic arrays that generate large amounts of clean power;
- Turning waste into power through biomass combustion and methane bio-digestion;
- Using more power-efficient production practices and purchasing power-saving equipment for farm operations; and
- Employing specific land and production management practices, including:
 - Sequestering carbon in soils (such as no-till farming);
 - Sequestering carbon in biomass (cultivation of new forests, vegetative buffers, grasslands or delays in harvesting forests);
 - Reducing methane emissions through changes in the practices used to process and dispose of manure; and
 - Reducing emissions of methane and nitrous oxide through changes in farming practices.

All of the above present enormous opportunities for American agriculture. In the July 18th Iowa listening session, we focused on: ***Employing specific land and production management practices to reduce GHG emissions.***

LISTENING SESSIONS

[Note: Groups varied in the number of issues they discussed. Some questions were not addressed due to time constraints and the reluctance to interrupt the flow of the discussions]

FIRST SESSION

1. What should the length of contract be? Is five years reasonable?

Green Group

- Length of time is not as important as terms of contract.
- Include considerations for getting out of contract if there is a death, loss of farm, change of ownership, etc.
- This group is not typical of the average farmer—those no-tilling would be doing it anyway and the contract is just a bonus.
- Current prices for carbon sequestration are low so it is not a high risk if farmers have to break the contract.

Blue Group

- Length of time is not as important as terms.
- What happens if farm is sold, severe weather events occur, etc.
- What is the escape clause? Penalties should be fair.
- Trepidation in signing a contract in case the carbon market is regulated and there is no way to back out.

Yellow Group

- Five years is an ideal time frame.
- Need to add provisions so people are not penalized for their efforts.
- Ownership structure influences contracts and terms should be equitable.
- Risks to seller should be equal to risks for buyer.

Red Group

- Trade carbon at a one- to two-year horizon with a contract that specifies price. Currently, Farm Bureau gradually sells out of a pool so final price not known.
- With land in hay/pasture, giving up flexibility to take it out. The quality of land and its price is important. For high-quality land, it is not worth effort to get \$10 more.
- Land ownership/tenure another important factor.

2. How does land tenure factor into the equation?

Green Group

- Many are only enrolling land they own, not land they're renting.
- Some do not tell landowners what they are doing—otherwise rents could go up or they would have to give the landowner the money.
- Need to consider the landowner/operator relationship carefully as prices for carbon go up—could raise land values and rental rates.

Blue Group

- If owner knows operator is getting payments, it's factored into rent.
- Most only considering enrolling land they own—but this could impede the program because owner operated land is a small percentage of total farmland farmed.
- Some people rent to me precisely because I use no-till. They didn't want to see soil erosion on their land.
- If we go to a mandatory system, the benefits will go to landlords—bypassing the tenants who really know the land and need to get benefits from it. Landlords are likely to say, “you no-till and I'll collect the rewards.”
- Again, we must protect the tenant in case the land is sold out from under him.
- The trend seems to be towards considering tenants and landlords, not owner operators.

Yellow Group

- Renters should follow through on the practices required by the landowner.
- If a renter makes a management decisions that adversely affects the landowner, the program should be flexible enough to allow for management changes.
- The cost of farming is passed on to the renters.

Red Group

- Less likely to go into a carbon program on rented versus owned land. Could potentially get a landowner to sign contract and then pick renters that would fit the contract terms—but how many landowners are this astute?
- Some landowners tell renters exactly how they want things done.
- Contract farming increasing and the potential for this type of programs decreasing. Poor practices can ruin a farm more in one year than the value of rent.
- Let the renter have the payment. They will then do a better job.

3. What degree of in-field verification is acceptable?

Green Group

- In-field verification is acceptable as long as verifiers are not in the way, ruining crops, or requiring a lot of assistance.
- We expect verification to occur. If there's no verification, that's not too problematic, but probably some would cheat the system.
- Wouldn't want verifiers overstepping what they're there to check on, i.e. they should just look for conservation tillage practices, not taking soil quality samples to check for carbon—payments should be based on general averages, not in-field samples which could vary widely.

Blue Group

- No problem with in-field verification as long as they don't ruin crops.
- Should only be verifying practices. If they're testing soil samples, farmers would want to know what to expect from tests, and might anticipate what the tests might say

so they don't lose part of their benefits if their fields aren't sequestering as much carbon as previously thought.

Yellow Group

- Yes. In-field verification is acceptable.
- University and research plots should be used to verify the amount of sequestration instead of sampling individual plots.
- Spot-checking will be fine.
- If we are held to a high standard, we need room to accommodate land management practices (spot tillage) or incorporate 10 percent flexibility into the program or contract.

4. What price would bring more people in?

Green Group

- Tough to answer since we're early adopters and have been doing it for free for years. We guess more than \$10/acre would be an incentive.
- Hard to determine a set price because there are so many variables including soils, location, crop history, temperatures, precipitation, etc.
- It isn't necessary to be concerned about the price because current \$1 to \$2/acre is not an incentive but farmers are still participating [*Note: Currently, AgraGate contracts are more about keeping people from switching from no-till back to conventional tillage practices and not necessarily about recruiting others*].
- Getting into no-till could require up to five years experience before there's enough of a comfort level to sign a carbon contract that has penalties and strings attached.
- Most farmers want to ensure high yields—and will try for a high yield at any cost. They are skeptical of no-till.
- We hesitate to sign a contract in case regulation comes and we end up having to do no-till without any benefits. We're concerned about this loss of choice.

Blue Group

- Because it's a new market, the price is highly volatile and everything is dependant on aggregator. There is a feeling of helplessness within the market about our lack of ability to sell on our own terms.
- At a minimum, price has to cover any potential loss in yield.

Yellow Group

- Carbon is a developing commodity so it will be difficult to establish a price in the short-term.
- We guess \$10 to \$20 per acre.

Red Group

- I'm getting money for carbon because I only had to make minimal changes and I had to change what I was doing anyway.
- Carbon needs to be \$10 to 20 per ton and paperwork has to be minimal.

- Potentially, carbon could rival our commodity markets. We have no idea how high values could go.

5. Should early adopters qualify or just those new to the program?

Green Group

- It wouldn't be fair to exclude those that have been doing no-till for years. The benefit of their experience has reduced the learning curve for those just entering the program.
- If payments are only for those who change practices, no-till farmers would likely till for a few years then switch back and this wouldn't achieve environmental goals.
- It's becoming an expectation that you shouldn't do anything unless you're getting paid to make the switch, but those who invested in the program early and have always been doing the right thing shouldn't be penalized for that by not getting payments.

Blue Group

- The learning curve is now much smaller. Early adopters "wrote the book" and this allows new adopters an easier entry. Early adopters are the reason the market is able to exist now, and to penalize them wouldn't be fair.
- We may end up seeing something like the response to the Conservation Reserve Program—go back to tilling for two to three years and then do no-till again to collect payment.
- Research shows that the longer land is in no-till, the more the soil can take up carbon. Therefore, those who have been doing no-till the longest are actually sequestering more carbon than newcomers.

Yellow Group

- Early adopters stand to make the greatest return on this program.
- Early adopters should not be penalized.
- This can be a good business move for those who get in early.
- CRP should be the place to start this program.

Red Group

- Carbon sequestration in soils is just a short-term buffer/solution.
- I'd want a system that provides incentives for sequestering more carbon than the average. I think I can do better than average and want to be paid for my tons and not for tons based upon some general system. I would pay for consultants to come and verify. We already have a system for manure management in Iowa.
- Programs should not penalize someone because they are already protecting the environment. We have to look at each case individually to see who over the past 10 years is making an honest effort to do conservation. CRP is good example of what we need to avoid. I couldn't get into CRP because I was not farming hillsides. There is nothing wrong with doing the right thing for nothing. "Those who pointed a shotgun at the land were made out to look like the good guys...or at least the smart guys."

6. Should the program be privately run or Government operated?

Green Group

- Definitely PRIVATE.
- There is an extreme distrust of Government programs because of fraud, people collecting payments for non-compliance and programs that are created but go unfunded.
- If it isn't Farm Bureau and it isn't government, who would it be? I wouldn't trust a private corporation because they can afford better attorneys and draft a contract that favors them, not us.
- I favor the Chicago Board of Trade and Chicago mercantile exchange to write the contracts. They've been doing this for a long time and they can do it right.
- We need a third party aggregator with no interest in either side.
- I wouldn't mind a corporation if the free market works and makes it possible for me to get higher prices.

Blue Group

- Private—trust is important. We want to work with someone who is established and with whom we have a personal relationship. Many entered the voluntary carbon market because they knew Dave Miller (IAFB) for years and knew where to go with any questions or concerns.
- We don't trust the government and they haven't done anything for farmers.
- People are more willing to switch when private markets are involved as opposed to a government-run system. USDA offices expect us to turn in our neighbors if they aren't in compliance. The people who are supposed to enforce these rules don't.

Yellow Group

- This should be privately run.
- The government should set it up and let a company run it.
- The Conservation Security Program (CSP) was great in concept but is a failure in application. It is important that the market be run like a business so the program can succeed.
- The free market is the only valid mechanism by which to set the price. Government would probably set the price too low and no one will participate. And if the price is too high, no one will be interested in the program either.

Red Group

- Reduce bureaucracy. Too much paperwork is required for FSA.
- Dan Lashof's second proposal for a carbon trading system based on a cap without any offsets from outside the cap ignores Dave Miller's point that a pound of carbon is a pound of carbon regardless of how you get it out of the atmosphere. Don't run the system through the government as that makes it subject to political considerations. This is the problem with conservation compliance.

- As long as the trading system is not part of government, it will be okay. Too much rigamarol trying to go through FSA offices and too much dependence on who is the district conservationist. The problem is not because we're uncomfortable with FSA coming onto one's land. Our problem with government is that unintended side effects of any rules will result. Will is the key word.
- CRP turned out to be disaster for local economy. It was good for wildlife but people left.
- CRP raised my pasture rent by locking up all of the grasslands.
- Regulations are great for larger producers because they are easier for bigger producers to handle. They already have lawyers. Smaller operations get squeezed out. First government regulates the big guys but then they keep regulating more and more. We have to draw a line in the sand [*note: perspective of contract farmer*].
- NRCS used to be a useful organization but is now "totally destroyed" as a result of moving from a technical assistance role to a regulatory role with conservation compliance. This caused dire unintended results. Once government gets involved, no matter how good the intentions, it is impossible to get politics out of the arena.
- Any program should be voluntary for farmers. The role for government is to set definitions and standards (as a "key enabler")—like with grain trading 75 years ago. This allows contracts to be written.
- We've done a lot of work trying to get people to grow switchgrass. The number one thing that came out is distrust of government. If government can mess it up, it will. Government has a key oversight role in trading like SEC—but just at a high level.

7. Does it make a difference how the carbon credit is calculated?

Green Group

- No—as long as the methodology is evenly applied.
- Farmers will likely pay the cost, so it should be as inexpensive as possible—otherwise the net profit will be down to zero.
- Sampling fields is expensive and highly variable even within the same field. There is not an easy or inexpensive way to get accurate measurements.

Blue Group

- It would if they would be expected to personally measure soil samples within fields.
- Currently, no-till is a practice that doesn't require measurements.
- We would need a high level of trust in the person doing the measuring.
- Measurement could uncover a lot of variability within fields. What if the measurements indicate that a tilled field is sequestering more carbon than a field that is no-till?
- There should be a standard for how a carbon credit is calculated.
- Uniform set of standards applied to all farms would be helpful.
- Standardization across different carbon trading programs would allow for sale in many different markets and possibly increase the value of the carbon offset.
- Government could be appropriate body for establishing standards but that standard needs to be created with industry input.

- We're concerned over who would "own" the data once it's turned over. We don't want it leaking to the public or competitors.

Yellow Group

- No concerns about how credits are calculated.
- A safety net should be in place to ensure that the person participating in the program has coverage (insurance).
- Once again, the powers are being placed in the hands of the regulators.

Red Group

- Forestry: We should get different payments for old growth versus new plantings.
- There is an international dimension to carbon markets: China can turn on a dime and change the rules.

8. What degree of transparency is appropriate/acceptable?

Green Group

- Most producers don't keep records on tillage practices.
- We do not have any issues with sharing information for verification purposes.
- The information needs to stay with the verifiers. We wouldn't want information to be shared at large because, for example, competing farmers could outbid or raise rents on land if they knew a two-year fertilizer was applied.

Blue Group

- Monitors should only be verifying practices.

Yellow Group

- If the goal is to get people to participate, the program must be very transparent.
- We're developing a new commodity so we need to be very careful and be transparent.

SECOND SESSION

1. What practices do you do that could count in carbon sequestration program?

Green Group

- I employ grass waterways, filter strips, grassed headlands, grass strips around hillsides and contour farming. I do not use continuous no-till and I run cattle on some ground in the winter. I have some continuous hay with occasional no-till corn.
- My operation is pretty much the same: no-till, grass waterways.
- Lots of the workshop participants live in southwest Iowa and use similar practices (this is the part of the state with high no-till participation).
- I am a long-term no-tiller. I employ terraces but no-till is by far my most important practice.

Blue Group

- I farm with my son, have never believed in farm programs but have had to participate to stay competitive. I don't believe humans are responsible for global warming, but I'm involved in the carbon sequestration program and strip-till everything. I try to use minimal inputs and still get good yields. I used to be in a corn/soybean rotation but now I plant only corn. Strip-tilling is only slightly different than no-till.
- I still do a corn and soybean rotation and am involved in the carbon sequestration program. I started no-till to save the soil but decided to participate in the carbon program. I don't want the government involved in the program because it already works and they'll screw it up.
- I do almost 100 percent no-till and am involved in carbon sequestration program with a corn and soybean rotation. I also use a nutrient management plan (managing nitrogen use) and wonder about the possibility of "stacking" air and soil quality credits. Someone needs to set the example. We need natural leaders/early adopters to get other people on board.
- I had to overcome skepticism from my neighbors who thought I'd go broke with no-till. Now, 10 years later, they've adopted the same practices.
- Farmers are traditionally resistance to new techniques and changing their farming systems. We need to get youngsters to start off on a new track and try new methods.
- The availability, durability and cost of tillage equipment are problems. Maybe people could work together to share equipment.

Yellow Group

- I use no-till.
- I use no-till because of the poor seedbed.

2. What type of returns would you need to receive in order to make changes?

Green Group

- With corn prices so high, I'm currently considering no tilling corn on corn. I might switch to strip tilling instead of no till.
- The amount of payment is not a major factor for carbon sequestration. However, if it gets complicated as far as paperwork is concerned, people aren't going to get involved.
- Who is running the program and the amount of paperwork makes a difference. Farm Bureau does our verifications, farmers trust Farm Bureau and it's easy.
- The price of carbon is irrelevant to me because I always do it. If I was a partial no tiller, price would really make a difference.

Blue Group

- I have no incentive to change to no-till. It hasn't proved as fruitful as in other places. I would need returns that would make up for the lower yields (near Albert City).
- I don't think no-till will ever pay enough for those farming unsuitable soils (*note: comments stimulated a general debate about whether no-till works for everyone—although some are firm believers, others stated that the majority of their neighbors are not interested in no-till*)

- Returns are important, but you also must consider the risk. I was paid for carbon credits and the farm was sold out from under me. Now I might have to pay the money back. We need provisions that protect against this risk.

Yellow Group

- Returns won't matter as much if the yield could be guaranteed.
- Let government set the cap and let a corporation run the market.
- We trust the aggregators.
- Government should set the cap and let another organization run the program.

Red Group

- I need a simple cost-benefit ratio.
- I need confidence in the system: including transparency, legal/legislative sustainability, and openness. Hopefully it will not only help me make money but helps me avoid some problems.
- The decision to adjust to a whole set of new management/technical skills is more important than financing.
- If it just requires looking at existing farm, sure, I'll take the money!
- I would like The Chicago Exchange to have an annual contract. I'm used to making decisions based on a new price every year.
- My own ideology is to not take any money from government. Depending on whether I was near an urban area, I might take a proactive response and put in a methane digester on my own. We need voluntary programs. We do not want regulations on global warming that are too strict. They could ruin the U.S. economy. We will eventually realize that global warming is not happening.

3. What are the current trends in land management practices?

Green Group

- We might consider planting trees to sequester carbon.

Blue Group

- Land management practices depend on the neighborhood.
- Most everyone agrees that the trend is towards increasing rental rates.
- I own farmland but don't actively farm it. I worked for Farm Bureau for 20 some years and worked on carbon benefits. I'm a strong supporter of carbon sequestration and am in the biomass business. I need carbon credits in order to compete financially. Carbon credits are a win, win, win.
- What about cellulosic ethanol? If we can do that, where do payments come from?
- Farmers should get carbon credits for meeting a renewable portfolio standard.
- I don't think cellulosic ethanol will get made out of corn stalks. It will get made out of other crops and we may go to a perennial corn crop.

4. What about producing a different type of crop? What would influence you to choose what you grow/how you grow it?

Green Group

- We aren't going to change our practices because we're already doing no-till. Changing crops or adding another crop is a lot more challenging and we would need to calculate the bottom line. We farm to make money, our number one cash crop is corn and it probably will be for the foreseeable future. We might need more money to no-till corn-on-corn.
- We'd love a third crop, but it's got to make money—as much as corn or soybeans.
- If we switch to another crop, will the carbon credit payments be higher? If we add a crop that takes specialized equipment, that's different than adding a crop that uses our existing equipment.
- How much time do we need to invest in learning about a new crop?
- With a new crop, we would need to learn how to cut, store, move, etc.
- If we add a third crop, what happens to the soil structure? We need to know what happens to the soil if we harvest that biomass.

Blue Group

- Dollar signs make all the difference. There are other factors but money is the big one,
- The third crop would need to be beneficial to the entire cropping system. It would be great to have another crop that is readily marketable.
- We would also need to consider resources, equipment, time, etc.
- If we could have switch grass, we could help reduce nitrate pollution in our watersheds. There are definite advantages to a third grass crop. However, if you can't sell it next door, you can't afford to sell it because it would cost too much to ship. Transportation is a big issue—the biggest problem in industry today.
- We are getting ethanol plants where we need them.
- We did a marketing study on ethanol plants. They need to have access to enough biomass within a 50 mile radius where it's not competing with other purchasers like ADM.
- A third crop would be huge—we still remember when soybeans were barely planted and now they are a mainstay of the farm economy.
- We need a market platform to deal with these issues. We have infrastructure issues we need to deal with and the relationships that develop between producers and consumers need to be flexible.
- If the money isn't there, we won't grow them.
- We aren't going to plant new crops if they don't get the returns that other crops do.

5. Where do you turn for technical assistance?

Green Group

- I turn to land grant universities for technical assistance.
- Carbon trading is not that important in decision making on the farm because there are not enough dollars involved.
- I haven't gotten a lot of money out of program thus far.

- I don't know if land grant colleges are up to speed on carbon. Dave Miller (IAFB) probably knows as much as anyone.
- Iowa State University is now the follower on practices and on research, not the leader they used to be.
- Someone asked if land and water conservation districts could act as verifiers and aggregators. The response was that having local people verify contracts involves interpersonal relationships and it just isn't going to work.

Blue Group

- I used to go to extensions but now go to private consulting firms and specialists. In the end, you become the specialist.
- You can no longer go to a university to ask specific questions about new crops, like how much fertilizer to apply. We have a big technological leap to make in the next few years with regards to biomass crops.

6. What is a good system?

Blue Group

- You need to eliminate risk.
- No, there will always be some risk and it needs to be incorporated into contract.
- I signed up and got caught because my landlord sold out, which brings up the issue of risk and what we need in place to deal with it.
- Insurance needs to be addressed and risks need to be addressed. We need to redo insurance because we are, in fact, paying people to fail (insurance incentives are backwards).
- Federal crop insurance works to the detriment of Iowa. The government makes it available to people who are going to fail.
- I don't ever need to wholesale change the farm. If I have to address a piece of my ground for natural causes, like a flood, I could be penalized but I can't lose my whole contract.
- I think it would be great if farm subsidies weren't there. The money goes to the landlord and successful farmers don't like it.
- Farmers who farm part-time have a whole different set of priorities. They won't be motivated by the same incentives as full-time farmers. We need to figure out how to deal with part-time farmers and get them involved in these programs.
- We don't need to get everyone involved. If you make it lucrative enough, people will do it. We've planted the most acres of corn in history because of the price of corn and nothing else.
- It comes down to the dollars. The program needs to sell itself.
- In response to a question about what it costs John Deere to do its greenhouse gas emission work, the John Deere representative responded that they haven't added new staff or done anything differently to deal with GHG issues. Energy efficiency projects look a lot more attractive because of high-energy costs and the industry still has lots of "low hanging fruit" projects to engage in for the near future.

- People need to see returns with a carbon market and need to be adequately compensated.
- We have faith in the Farm Bureau and appreciate the work that they've done. Engaging in carbon sequestration projects is a matter of pride—it's more than the dollar value.
- Dollars are still number one, but there are other factors.
- Dave Miller (IAFB) is a great resource but I have yet to sign up for carbon credits. I don't want to tie my hands with the carbon credit market. It doesn't offer enough of a return to merit my involvement. I also worry about what I would need to do in response to extreme circumstances.

7. What about imposing carbon caps or taxes?

Green Group

- A carbon tax is more acceptable than a cap. You wouldn't need new levers—you can avoid things by using less carbon.
- Put a cap on industry instead of a tax. I can get money if I own my land.
- A carbon cap would make young farmers who rent land poorer. I don't think carbon payments will benefit the farmer at all and will be a net zero.
- I don't favor a cap. It's hard to treat everyone the same—it's an indirect cap
- Are we talking the United States or the whole world? Who gets the cap?
- Not a lot of enthusiasm about the market for carbon sequestration.
- I think cap/carbon sequestration payments are coming.
- Industry will just do other things instead of paying prices to farmers to sequester carbon.

Blue Group

- Some were confused about carbon caps and the facilitator clarified that carbon cap would not be mandatory for farmers, it would be mandatory for industry. One of the producers still didn't like the government-mandated aspect of a cap but felt that since it wouldn't require mandatory participation by farmers, it was slightly more palatable than originally portrayed in earlier conversation.

7. What about land contracts, is that an issue?

Green Group

- If you want farmers to do things like no-till, you may end up getting everyone to do it. In response, land prices will go up and farmers will end up suffering because of higher rents. You should just kill the whole program and impose a carbon tax.
- Eighty percent of carbon sequestration contracts are with renters. The Farm Bureau contract specifies farmers will control the land for five years.
- If you can't meet your contract, you have to pay some of it back.

Blue Group

- Some of the group have been in the carbon program but have not been paid yet. Another has received \$3,500 over a three-year period.
- Contracts need to be clearer and farmers need to understand them.
- I don't fully understand my contract. I have to have faith in system.

8. What should penalty be if you pull out/have to pull out?

Green Group

- There are a lot of variables like death, bankruptcy, etc, that complicate things.
- The renter is responsible if you can't honor your five-year contract.
- If you lost your lease and didn't get penalized but had to pay back the un-honored part of the lease, that would be okay.
- Participants were very skeptical of multi-year contracts.
- Participants also have mixed feeling in terms of whether this carbon trading will be worth anything. Some participants thought yes, some thought no.
- High prices would really make a difference, and it could be different between renters and owners. Owners would benefit much more.
- What would it take you to change practices?

9. What are barriers to livestock waste to energy?

Green Group

- It takes a considerable investment for digesters.
- There are zoning issues with methane digesters in Iowa.
- You must consider fertilizer values with using manure for energy.
- We must consider investments, size and economies of scale.

Red Group

- I tried installing a methane digester twice and had to abandon it each time because it could not deliver what was promised
- A new system like a digester has to be considered as a whole new operation requiring unique management effort and attention. My own breakthrough was discovering I had to mix poultry manure with sawdust and I now sell to nurseries in Vermont.