

PA Switchgrass Growers' Group Organizational Meeting

April 18, 2016

Discussion #1: Status of Switchgrass Production in Pennsylvania

Why are farmers growing switchgrass?

- Some context for what we see on the landscape: 150,000ac in conservation reserve in PA. Very little in monoculture, but it uses a lot of native grass blends. Easily the biggest use of switchgrass in Pennsylvania, rivaled only perhaps by mineland reclamation and bird habitat uses. But every year, 10 to 20,000ac drop out of that program. Some was lost to corn when prices spiked, for example. We also have monoculture plantings, and some weedy plantings, etc.... A lot of planted diversity.

How are they using their switchgrass now?

- Bedding pellets. Generally a softer pellet and requires a fair amount of public education. A few poorly designed experiments gave it a bad reputation for horses, but this is not well demonstrated in the literature.
- Mixed grasses pelletize well.
- Absorption material. Pellets spread out well and don't break down quite so easily. Until the recent price fall in natural gas, drilling activity drove a very large market for pellets as absorptive materials for drill cuttings.
- Conservation plantings
- Straw sells for \$300/ton all shiny and new. Why can't we sell switchgrass for \$200/ton without all the added logistical issue of pelletizing? Maybe we need to reframe the message for applications
 - Mulch, bedding are great markets in this regard. Have we lowballed ourselves here?
 - Poultry bedding is a big one here too. Significant increases in foot health – see Delaware Univ. Extension research

Discussion #2: Future Opportunities for Switchgrass in the Keystone State

How would you like to utilize/sell switchgrass?

- Heat applications
- Organic bedding markets. Some organic growers market the use of organic bedding – can we capitalize on this as a key market? Especially for switchgrass farms that don't really benefit from spraying. Could this be a niche market? Would we get more organic buyers if we developed this? Even very small-scale niche uses like organic seasonal decorative bales?
- New opportunity? CRP land \$116/ac – would a farmer be interested in getting \$50/acres with the added ability to harvest, previously not there?
 - Ex: Chesapeake Bay modeling work – Jacobson, Woodbury, etc.
 - Conservation / sustainability argument may not be compelling to a grower. Markets are much more important.

What challenges are holding back markets and business growth?

- Perhaps we lack a “purity of product.” Weed seed issues, etc. are all different field to field and are more or less important market to market. For example, a weedy field of switchgrass might pelletize well, but it’s of less interest for another market. Is it practical to think about marketing “just switchgrass” or some other category?
 - Mike Palko with PA Fuels for Schools came up with chip fuel specifications involving newer crops (ex. willow) for boilers. Could something similar be developed for grasses? Percentage of leaves involved, etc.
 - Who would do such a spec? This organization? Might be a good use of this group.
 - Is there a standard way to assess a bale?
- A challenge: switchgrass for conservation was pushed so hard from Penn State. We need more bottom-up growth, and for this we need more markets or better established markets.
- Stove issues and pelletizer issues
 - Higher concentration of ash/silica
 - Wears on the pelletizer due to this. Might need more frequent replacement. Switchgrass is quite harsh, so mixing in other species helps with this. Even 5% of green material helped run the process more smoothly.
 - Chlorine issues in boilers
 - Issue with smaller units:
 - Knowledge with a feed mill or similar system really doesn’t translate well. It’s a whole different process.
- Early negative market experiences – just due to grower inexperience, growing pains of a new crop. We need to reverse some of that.
- Leaf/weed inclusion – maybe we need farmer education about cutting higher to avoid weeds, rocks, soil, etc. Can’t always cut it like hay.
- Market size is a big factor impacting the need for specs, extra attention
 - Small markets – all you need is feedback from one buyer
 - Future commodity opportunities might need agreed-upon specs, but are they well-developed enough yet?

Discussion #3: How can a statewide growers’ group help address future needs and opportunities?

- Formalizing this group? “Home” on Penn State web presence. Do we need a formal organization with directors, bylaws, etc. “What happens when we leave here?” Are we a working group, a formal organization...?
 - Nominations for Board/Steering Committee:
 - Positions:
 - Chair
 - Vice Chair

- Secretary
 - Treasurer – Wesley or George are key options here
- Will Brandau
- Larry Hartpence
- Andy Bater
- Dan Arnett
- Calvin Ernst
- George Kauffman
- Wesley Ramsey
- Mike Palko
- Ex-officio members: Penn State Extension, etc. More of an administrative capacity, web presence, physical meeting space, etc.
- Name: Association of Warm-season Grass Producers
- We could eventually pursue a committee/special interest structure within membership once established.
- Chase a grant with a targeted mission to fund our meetings/workshops, etc. SARE?
- Board of Directors? Becomes more official for weighing in on legislation, competing for grants, etc. But also good to have open membership for meeting participation, etc. Penn State ownership is probably of large importance for securing grants with cost sharing requirements.
- Value added producer grants – RFP recently released
 - Who would like to help put this together?
 - Penn State Extension individuals
 - Objectives: (planning grant – phase 1 – establish group, make a plan, then set up a more structured group with working objectives for phase 2)
 - Marketing prospectus – identifying markets and the quality specifications needed to reach those.
 - Introducing specifications
 - Tackle the challenge of transportation. Bring in stakeholders, industry reps on this. Maybe a formalized group can attract this.
 - Grower demographics, assessment of acreage on the ground, what’s available.
 - Value added products for development
 - Pellets for heat
 - Resources to keep this group on track, identify markets. Selling bales at a fair price is the single biggest thing you can do to build recognition about potential. Focus on higher value niche markets rather than commodity markets for energy, for example. Focus on a few, high value markets for

working capital stage of the grant – poultry bedding, pellets for higher-value uses, etc.

- Standard setting and specifications for the use of switchgrass for various markets.
 - Do we have standards for assessing bale quality?
 - Establishing a method might add some cost to the bale
 - Can we model based on forage quality standards? But some people still just look at the color even in a very well-established spec scenario. “The customer is fickle.”
- Cooperative grower group could share cost of higher-value equipment.
- Cooperative grower group could target larger markets individual growers can’t independently reach.
- Public education, publicity
 - Need publications helping educate the public on bedding potential, palatability, etc. and animal interactions – we could capitalize on this and recreate it as an extension research summary for wider distribution. Can publish a literature review or eXtension publication with Charles Gould at Michigan, perhaps.
 - More of a narrative guide to establishment (after year 1, don’t plow it under – it’s supposed to look like that!)
 - More formal guide to currently available markets in each of its forms – baled, chopped, pelletized, etc. Highlight prominent regional potential (e.g. Delmarva poultry potential)
 - Agronomy Guide incorporation
 - Need to establish switchgrass as a “real crop.”
 - Involve it in models, soil test assessments, etc.
 - Spot market pricing for switchgrass?
- Dedicated marketing effort to reframe, rename switchgrass. It should be valued more highly as straw for the markets it reaches. We’ve lowballed ourselves early on in this market development.
- Market research on niche markets – organic question? Very high-value niche market?
- Best markets to work on – most bang for the buck regarding inroads, specifications, etc. Well-established ground work already, some positive examples on the ground.
- Platform flexibility
 - You have pellets. You sell to oil and gas. You lost that market. You need to know what else is available to you. You start selling as premium horse bedding.
 - You have chopped straw. You sell to a poultry house. You lose that market. You need to know what else is available to you. You start selling as fill for silt socks.
- Need for regional meetings.
- Should we reframe this as a grass market group? Include miscanthus, mulch hay, etc.?

- Lists of why switchgrass is beneficial or not beneficial for our own reference.
- Group could provide input on whether it's undervalued in each market.
- Branding troubles – shiny wheat straw is much higher valued for aesthetic reasons even though it performs worse than switchgrass. How do we make that jump?
- Establish ranges of income for various markets.

A few publications:

<http://articles.extension.org/pages/72603/research-summary:-biomass-crop-production-benefits-from-a-wide-spectrum-of-marketing-opportunities>

http://articles.extension.org/sites/default/files/Biomass%20Market%20Opportunity_Final%202014_0.pdf

Bill Brown to invite him in on this group, these markets.

Ken Staber at Univ. of Maryland – nutrient uptake

Transcript of Online Discussion/Chat

Glenn Kenny: I may listen in on my iPhone while working.

Sarah Jean Wurzbacher: Welcome, everyone. We've still got participants trickling in. We'll get started shortly.

Sarah Jean Wurzbacher: Those of you online, if you'd like to introduce yourselves, type in this chat pod and I'll read your words

RobertEvangelista: Robert Evangelista, Rowen College at Burlington County (NJ), interested in all forms of purpose-grown and waste-derived bioenergy

Charles Gould: My name is Charles Gould. I am with Michigan State University Extension. I work with farmers across the state on growing and developing markets for bioenergy crops. I have a small group of growers interested in doing much the same as the group in PA is doing. I am interested in listening and learning. The group I am working with is conducting a feasibility study right now and is leaning more to producing briquettes to replace wood chips (which are very expensive right now in Michigan) for industrial boilers.

guest: We need someone to run a mill at our sessions.

guest: Then offer the equipment for sale to our participants.

Ian Paddock: Ian Paddock from upstate New York State. I'm working to make and understand what it will take to product grass pellets and grass briquettes using 2 machines I've purchased. I'm also working to experiment with producing Cellulosic ethanol at home, so that I can understand the process, and have had recent success in completing the process.

Sarah Jean Wurzbacher: Mike just introduced the NEWBio Consortium:
<http://www.newbio.psu.edu>

Sarah Jean Wurzbacher: If you want to check it out, head to that site later.

Ian Paddock: Three main goals of my work are a) understand opportunities of multiple product streams from single crop (fuel, power (CHP), pellets/briquettes). b) want to be ready when markets for grass based products makes itself available to small towns & farms. c) spread awareness of this opportunity

Ian Paddock: I viewed the consortium site last week - looks like a great site with plenty of information

Charles Gould: I am also interested in the absorbency characteristics of miscanthus.

Anyone have any experience with replacing wood shavings with chopped miscanthus? Wood shavings are so expensive right now that farmers are looking for other alternatives.

guest: I am Will Brandau. I have 40 acres of switchgrass. It is tough to type and listen at the same time. I am very excited about this group and expect great results from this networking. I am already hearing evidence of that possibility.

Charles Gould: Call me at 616-994-4547 or email me at gouldm@msu.edu. I would like to talk further about miscanthus opportunities.

Mark Madden: Extension - NE Pa. Established 7ac of WSGs in 2009. Impressed with productivity but it remains unutilized. It would seem there are opportunities for our local growers on marginal land.

Ian Paddock: I meant to mention I've established a plot of switchgrass that's been growing since 2007

Sarah Jean Wurzbacher: Welcome, everyone.

Ian Paddock: Thank you Sarah

Charles Gould: I appreciate you providing the opportunity!

Ian Paddock: Sarah - will you be gathering everyone's contact info before were done?

Sarah Jean Wurzbacher: I will. We are also taking notes I can send out to everyone. If you wouldn't mind emailing me a reminder, I'll make sure you receive those.

Sarah Jean Wurzbacher: sjw246@psu.edu

guest: The REDA grant will hopefully utilize all types of grass as well as weeds.

Charles Gould: As far as mixed grasses goes, my concern would be a reduction in BTU output. Would weeds or other WSG in a stand of SG reduce BTU output, and therefore reduce the profit potential for the farmer?

Sarah Jean Wurzbacher: My inclination is that the ash issue is also an important one here when you get to mixes

Charles Gould: True.

Sarah Jean Wurzbacher: Yes, Mike just agreed

Ian Paddock: Speaking of the ash content topic - is anyone aware of a pellet stove for

home use that includes grass pellets as a product it can consume? I've asked some manufactures of pellet stoves and haven't had much luck yet

Sarah Jean Wurzbacher: Good question. Let's bring that up as we talk about market challenges. Remind me when we get there.

Ian Paddock: will do - Thanks Sarah

guest: My oil furnace does not produce any ash. My grass fuel produces a lot of ash. The ash will not stop me from burning grass.

Charles Gould: Sarah, is this an opportunity to produce a multi-state Extension bulletin on using SG as an equine bedding?

Sarah Jean Wurzbacher: Excellent idea, Charles. We have an eXtension presence, and this might be a good place to combine our knowledge.

Sarah Jean Wurzbacher: Dan Arnett, whom you've heard talking, has been working on a switchgrass pellet for horse bedding, and I believe they have done some work in this regard already.

Ian Paddock: How about corrosion in the oil furnace - I was told that burning grass also results in chlorine that corrodes metals, which has led to the challenges of burning grasses in traditional pellet stoves

Charles Gould: He's the one who said something will be released soon?

Sarah Jean Wurzbacher: Yes

Charles Gould: Fantastic.

Sarah Jean Wurzbacher: This is their website: <http://www.ernstseed.com>

Sarah Jean Wurzbacher: Mike Palko has a contact with pelletizers and stoves that might answer Ian's needs. I will make sure I make a record of that for the notes

Ian Paddock: Thank you Sarah

Charles Gould: So let me make sure I understand what was just said. The advantage of pelletizing mixed grasses is that it makes pelletizing easier as compared to running straight SG through the pelletizer. Did I hear correctly?

Sarah Jean Wurzbacher: Yes

Sarah Jean Wurzbacher: They incorporate about 5% green material

Sarah Jean Wurzbacher: hay, whatever

Charles Gould: SG is cut and baled after the killing frost. All grass regardless of species will be dry and brown. What do you mean by "green material"?

Sarah Jean Wurzbacher: Non-switchgrass.

Sarah Jean Wurzbacher: I know they've used old hay and a few other additions in their process.

Sarah Jean Wurzbacher: I think they've worked in some bluestem as well

Charles Gould: Thanks.

Sarah Jean Wurzbacher: They have a large diversity of possibilities - their primary product is conservation seed mixes, so there are lots of native plants available at all times

Sarah Jean Wurzbacher: mulch hay, wild rye, straw, etc.

Charles Gould: Is there a particular ration of SG to green material that makes a good pellet? I understand that may be a trade secret!

Charles Gould: Excellent discussion so far!

Sarah Jean Wurzbacher: He said they usually run 5%, but they continuously assess the process and adjust it on the fly. One bale to the next behaves differently

Sarah Jean Wurzbacher: They continuously monitor the process. And this is a large application - they run an industrial pelletizer at 3-6 tons/hr

Charles Gould: What does happy SG look like?

Sarah Jean Wurzbacher: Come up to Crawford County, PA. Lots of happy switchgrass there.

Charles Gould: Would a poultry operation prefer chopped SG vs pelletized SG? I don't know. Non-pelletized SG would fit one of the three things just mentioned, that being a less processed, less touched, product.

Sarah Jean Wurzbacher: Univ. Delaware has been focusing on a one inch grind

Sarah Jean Wurzbacher: need some fluffiness

Sarah Jean Wurzbacher: We had a webinar on that - you can find the recording through the NEWBio webpage

Charles Gould: I'll check it out.

Sarah Jean Wurzbacher: I believe that was in November, if you're searching the webinar archives

Charles Gould: Going back to the pelletizer discussion earlier. We had a mobile pelletizer that we would take to farms and field days. We have now taken the pelletizer and hammer mill off the trailer and installed it in a building on campus. The pelletizer was manufactured by Colorado Mill Equipment. I think it is an ECO-ring R30. See website: <http://www.coloradomillequipment.com/equipment/pelletmills/ECOR30.php>. It was a ring die system and if we had it to do over again we would go with a flat die.

dan: Charles - why would you rather use a flat die instead of a ring die?

Sarah Jean Wurzbacher: We've seen both. Just curious about your preference.

Charles Gould: The flat die seemed to produce pellets with less hassle. We had our share of drilling out holes in the ring die. That's not fun. We still don't have a flat die so we are just careful when operating the pellet mill so it doesn't plug.

dan: I've heard farmers say that they'd need \$100 per ton at the farm gate to make switchgrass worth their while. Do you think that sounds about right? Does it depend on the location, or other factors?

Charles Gould: In a conversation last spring about that very topic with one of the largest farmers in my county, he said his breakeven cost would be \$60/ton.

guest: Dan, I sold 100 tons of SG in 8x4x3 bales. I have a round baler so I had to hire a square baler. I got \$80/ton at the farm gate. It cost me \$4000 to harvest. I cleared \$4k

Charles Gould: Wood pellets are going for \$250/ton in Michigan.

guest: I have never seen a CREP field with a quality stand of switchgrass.

Sarah Jean Wurzbacher: True. Very few monocultures there. Different application.

guest: I vote yes

Charles Gould: Someone still has to take the lead regardless of whether you are a working group or an association.

Charles Gould: Value added producer grants RFP was just released.

Sarah Jean Wurzbacher: Do you know the due date?

Sarah Jean Wurzbacher: Excellent suggestion

Charles Gould: June 24 and July 1 see http://sustainableagriculture.net/wp-content/uploads/2016/04/2016_4-NSAC-VAPG-Farmers-Guide-FINAL-1.pdf

RobertEvangelista: Thank you Sarah for your organization skills and leadership; I have a meeting to go to. I will follow up with you off-line. Robert Evangelista

Sarah Jean Wurzbacher: Thank you, Robert. Shoot me an email so I can share notes with you

guest: I hammer mill (value added) for both cattle bedding and chicken bedding

guest: I sent notification of this meeting to everyone on that cooperative email list.

Charles Gould: I agree with whomever was just speaking.

Charles Gould: Person with the big bass voice.

Sarah Jean Wurzbacher: Dan Arnett from Ernst Conservation Seeds

Charles Gould: That's why we think there is an industrial market (industrial boilers) for SG briquettes as a replacement for wood chips.

guest: We are running out of time. organize or not???

Charles Gould: Unfortunately I need to leave. This has been an excellent discussion. I'm very glad I was able to participate in the meeting. Thank you for the invitation. I look forward to reading the notes you send out.

Sarah Jean Wurzbacher: Thanks, Charles. Make sure to send me an email

Sarah Jean Wurzbacher: Yes, I think we're moving toward more formal organization in this group

guest: Most switchgrass stands are not pure sg but rather warm season grass mix.

guest: yes

guest: Association of Grass Growers

Sarah Jean Wurzbacher: Will, will you accept a nomination for a board position?

guest: yes

Sarah Jean Wurzbacher: Excellent

guest: Dan Arnett

guest: Andy Bater

guest: Sarah

guest: Dan is the face on Ernst switchgrass. Calvin will add help but Dan is in the trenches

guest: I agree we need Andy

guest: Besides I want to sample his bio-drink

guest: Who is talking?

Sarah Jean Wurzbacher: Mike Palko

guest: I nominate Mike

guest: Alliance of Grass Growers

guest: Association of Grass Growers

guest: Grass Growers Partnership

guest: Grass Growers Rat Pack

Ian Paddock: I have to drop - I appreciate the invite today and found the session very informative. Being in upstate NY and more of an individual working on a small scale for now on these technologies, I would like to continue to listen in and offer findings of our work this summer with pelleting and briquetting various items (switch grass, brohme, timothy, and canary grass)

dan: Grass-keteers (all for grass, and grass for all!) :)

guest: or...change grower to producer

Ian Paddock: Sarah - I have emailed contact info to you

Sarah Jean Wurzbacher: Thank you, Will. We'll keep you in the loop with emails, notes, voting, etc.