Uphill Battle

Switchgrass Farming On Marginal Land

Andy Bater
Fifth Estate Growers
4/23/13
Biofuel Presumptions

- “Food versus Fuel” proponents mandate that prime agricultural land shouldn't be used to produce biofuel feedstocks.
- Biofuel crops must be “sustainably” raised.
- Biofuel feedstocks need to have a positive “Net Energy Balance”.
- Timing is important when harvesting biofuel crops for feedstock quality and for soil and wildlife protection.
Biofuel Presumptions, cont.

- Biofuel feedstocks need to be price competitive in BTUs per ton versus fossil fuels
- Alternate markets must exist for biofuel crops
- Government ag subsidies are in peril
- Farmers/landowners need to make money
It's a nice dream
Who would grow switchgrass then?
Likely Biofuel Crop Growers

- Non-farmer landowners
- Retired farmers
- Landowners with fallow infertile land
- Wet or terrain challenged landowners
- Landowners interested in fostering wildlife
- “Green” or “Organic” farmers/landowners
Let's talk about working crummy land
First, a little history...
Row Crops
Contour farmed with horses and small machinery
1971 - Mostly Hay
Gone Fallow

Shale Acres '06 PASDA Aerial
Very Poor Acidic Soil

Referred To: Rutgers Cooperative Ext. of Morris County
(973) 285-8307

Soil Tests and Interpretation

Silty Clay Loam

pH: 5.35  Strongly acidic, suitable for the growth of blueberry, potato, azalea, rhododendron, and holly, but too acidic for most other plants.

Lime Requirement Index: 7.65
Adams-Evans LRI is a measure of the soil's buffering capacity (resistance to change in pH). It is used to determine liming rate, when necessary.

Macronutrients (pounds/acre)

- Phosphorus: 37  (Below Optimum)
- Potassium: 333  (Above Optimum)
- Magnesium: 99  (Below Optimum)
- Calcium: 1298  (Below Optimum)

by Mehlich 3 extraction

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Micronutrients (parts per million)

- Zinc: 3.4  (Adequate)
- Copper: 1.3  (Adequate)
- Manganese: 39.  (Adequate)
- Boron: 0.3  (Low)
- Iron: 118  (High)

Special Tests and Results

Electrical Conductivity: Soluble Salt Level = 0.05 mmho/cm  (Low soluble salt content)
Soil Organic Matter: Organic Matter = 2.43%, Organic Carbon = 1.41%

Lime and Fertilizer Recommendation
What to do?
Let's grow a biofuel crop!
Carl Neutzel seeding switchgrass on the website owner's farm in early June. This is a special "wildflower" no-till drill to handle the small switchgrass seeds. The field was mowed short the fall before and then sprayed with glyphosate and 2,4-D herbicide approximately 30 days before seeding.
No-Till Drill Planting
3 and 6 weeks pix
December 2008
2012 - Switchgrass
Why we call it “Shale Acres”
Rocks
Tree Stumps
New Site Access
Wildlife
Downside of Wildlife
Varmints (Wildlife)
Mowing
Mowing
Note the “tilt meter”
BTW, switchgrass is slippery!
Seem to take very few raking pictures
Neighbor helping run first batch of small squares
Crop must be very dry for soil nutrient recovery
(Still a little too much green here)
Fall Jamming
Spring Jamming
One reason I went away from round baling
No Surprise, Round Bales Roll
Another reason I went away from round baling
Harvest Timing

Note the snow and tire chains
May come to this...
Mechanized Collection Troublesome
My favorite “game”
Product Purity
Not all bales look this good, weeds happen.
Ah that's it, the weeds are intentional!
On Farm Storage
On Farm Storage
On Farm Storage
Secondary Beneficiary
On Site Loading
Low Bulk Density
This 500 lb bale worth $0, $1, $10?
(The final reason I went away from round baling.)
The Competition
“Don't mean a thing if the cash register don't ring.”
Common Form Factor
Weight versus Bale Count
Higher Value
Product Education
Alternate Market: Erosion Control
Alternate Market: Mulch
Alternate Market: Animal Bedding
SHALE ACRES
AT SLEIGH HILL
THE BATERS

Thank You!
...for buying switchgrass.
We are grateful for your purchase and important feedback!

Andy Bater
Fifth Estate Growers LLC
917-270-5193
andrew.bater@verizon.net

(Small square and covered/uncovered 4x4 round bales still available.)

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Non-Pecuniary Compensation
Questions?

I have many...

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