The Growing Climate Solutions Act
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overview
- USDA/EPA carbon market study
- USDA advisory committee
- technical assistance provider & 3rd party verifier certification
- potentially eligible practices
- website listing certified providers & verifiers
- producer protections
- what happens next? climate change?

current ag carbon market
- some farmers are selling carbon credits for annual increases in carbon sequestration to businesses & individuals seeking to reduce their carbon footprint
  - corporate purchases driven by (1) meeting corporate sustainability goals & (2) anticipating Biden administration carbon restrictions
- this market is very unclear. Don’t know prices, practices, buyers, sellers, measurement & verification. Carbon credit sales are private contracts, no disclosure requirements.
- In an attempt to bring more transparency to the ag carbon credit market, the US Senate has adopted S. 1251, the Growing Climate Solutions Act

S. 1251, the Growing Climate Solutions Act
- On June 24, 2021, the US Senate adopted S. 1251, the Growing Climate Solutions Act of 2021.
  - not yet adopted by House of Representatives
- S. 1251 co-sponsored by 54 senators, including Nebraska’s Sen. Deb Fischer.
- S. 1251 seeks to make it easier for farmers and ranchers to participate in voluntary carbon credit markets, and to receive a fair share of the carbon credit revenue they generate.
- If adopted by the House and signed by the president, S. 1251 would go a long way in facilitating effective producer participation in US carbon markets.
S. 1251 USDA/EPA carbon markets study

- Look at how voluntary carbon markets operated over the past four years, including supply of & demand for ag carbon credits.
- Project supply & demand for ag carbon credits for the next four years.
- Identify complications associated with measuring and verifying long term carbon sequestration & other ag practices.
- Identify complications for small, beginning & socially disadvantaged producers participating in carbon markets.

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carbon markets study, con’t

- Evaluate potential USDA role for improving carbon reduction measurement & verification technologies.
- Examine the extent to which existing carbon markets adequately consider unique challenges facing ag producers regarding carbon credit verification, additionality, permanence & reporting, given regional variations & different ag business arrangement.
  - permanence: forest credits & wildfires
  - business arrangements: e.g. land leasing
- Analyze whether current carbon markets have sufficient flexibility to deal with disrupting those ag practices generating carbon credits due to unavoidable events including production challenges & natural disasters.
- This study will go a long way in identifying problems producers have participating in existing carbon markets & how to improve those markets to benefit producers.

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advisory committee

- USDA advisory committee to oversee operation of the USDA program to certify GHG technical assistance providers & third-party verifiers.
- A majority of the advisory committee members must be farmers, ranchers or private forest landowners.
- Other committee members would represent carbon market verification experts, carbon market participants [buyers & sellers?] & land grant universities.
- The heavy representation of farmers, ranchers & private forest landowners suggests that the certification program is likely to have a farmer-friendly tilt.

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certification

- voluntary program for individuals & entities technical service wanting to be certified technical assistance providers & 3d party verifiers
- tech assistance providers (“providers”): help producers & forest owners to participate in carbon markets
  - how to increase soil carbon storage
  - how to generate carbon credits (1 ton stored carbon = 1 carbon credit)
  - how to verify carbon sequestration
  - how to participate in carbon markets

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certification, con’t

- 3rd party verifiers ("verifiers"): USDA certified to verify & measure soil sequestration etc.
- providers & verifiers not required to be certified
- only USDA certified providers & verifiers can be listed on USDA website
- farmers not required to use certified providers or verifiers
- if S. 1251 becomes law, interesting to see who becomes certified: extension? conservation districts? 😊

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potential credit-generating practices

- land/soil carbon sequestration; reforestation; forest management; preventing conversion of forests, grasslands & wetlands; wetland & grassland restoration; grassland management; NRCS conservation practices
- emission reductions from fuel changes or use reductions; on-farm energy generation; energy feedstock production; fertilizer or nutrient use emission reductions
- livestock emission reductions from feed changes and/or additives; pasture management practices.
- other practices proposed by USDA & approved by advisory committee

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potential practices, con’t

- likely that USDA could identify measurement & verification protocols for all of these potential practices
  - protocol rigor will have a lot to do with how much credibility ag carbon credits have in private carbon markets
- also likely that certification protocols for providers & verifiers would include familiarity with all or more of these potential practices
  - or could be certified for some but not all, etc.
- expect USDA certified provider & verifier website would be first stop for producers interested in participating in carbon markets

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producer protections

- to the maximum extent feasible, certified providers & verifiers
  - would have to act in good faith
  - provide realistic estimates of costs & revenues
  - ensure that producers received a “fair distribution” of carbon credit revenues
- these consumer protection requirements would be a significant advantage for dealing with a certified provider & verifier
  - private carbon markets would not be required to adopt similar protections

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summary

- S. 1251 would not authorize USDA to regulate private voluntary carbon markets
- but hope is that S. 1251 would shape private carbon markets, especially regarding measurement & verification protocols
- also hope that many providers & verifiers would become USDA certified, so that they would follow USDA protocols, including producer protections
- private carbon markets could adopt their own versions of USDA protocols & protections

what’s next?

- HR must enact its own version of S. 1251
- if differences between Senate & HR, conference committee to resolve differences
- if Senate & HR both adopt conference committee report, S. 1251 would go to President Biden for signature
- certification could begin within say 12 months of presidential signing.

current carbon sequestration

- 2019: US carbon sequestration = 12% of total carbon emissions
- 98% US carbon sequestration from forests
- remaining 2% from cropland, grasslands & wetlands.
- I expect some USDA program that encourages farmers to continue & implement GHG reducing practices, regardless of carbon markets and/or US carbon bank
- how big the program is and what payments would be depends on current US budget negotiations, so stay tuned

bigger picture

- will there be a market?
- Congress currently debating $3.5 billion budget resolution
- within this sprawling umbrella of new or expanded federal programs is the Clean Energy Standard (CES)
- if the CES program is adopted, US carbon markets will see increased activity
- if CES program not adopted, US carbon markets will shrink to where they were before the 2020 election, when no one was discussing ag carbon markets.
bigger picture, con’t

- If CES not enacted, EU & China will dominate future UN climate discussions
- US will have little leverage to move China to pollute less
- US GHG emissions (#2 globally) won’t decline much and neither will global GHG emissions
- All the “bads” associated global warming – more floods, hurricanes, droughts, wildfires, sea level rise, arctic sea melt, etc. will accelerate
climate change & Nebraska irrigation

- Dr Don Wilhite, UNL water & climate professor emeritus, said very possible that 2012 drought conditions could become the new norm in Nebraska by 2041-2070
- Temperatures have already increased 1991-2012 compared to 1901-1960 and will continue to increase—issue is how much will they increase
- Projected temperature increases from 4-5°F in low emission scenarios to 8-9°F in high emission scenario (2071-2099)
  - Low emission scenario—significantly reduce GHG emissions through more wind, solar power generation, energy conservation requirements, etc.
  - High emission scenario—business as usual (no significant GHG reductions)—most likely outcome

climate change & irrigation

- Climate models predict dramatic increase in high temperature days in both high & low emission scenarios
- Current high temperature days of 100°F or above:
  - Omaha 2.1 days/yr
  - Lincoln 4.6 days/yr
  - Grand Island 3.5 days/yr
  - McCook 10.9 days/yr
  - Scottsbluff 5.3 days/yr
- High temperature days would increase from 13-16 more days/yr (low emission scenario) to 22-25 more days/yr (high emission scenario) by 2041-70!
- 2012 drought had 10-21 high temp days in eastern Neb and 21-37 high temp days in western & southwestern Neb

Increasing number of hot days (>100°F) per year

<table>
<thead>
<tr>
<th>City</th>
<th>Current</th>
<th>Low emission scenario</th>
<th>High emission scenario</th>
</tr>
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<tbody>
<tr>
<td>Omaha</td>
<td>2.1</td>
<td>15-18 +786%</td>
<td>24-27 +1214%</td>
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<tr>
<td>Lincoln</td>
<td>4.6</td>
<td>18-21 +424%</td>
<td>27-30 +620%</td>
</tr>
<tr>
<td>Grand Island</td>
<td>3.5</td>
<td>17-20 +529%</td>
<td>26-29 +786%</td>
</tr>
<tr>
<td>McCook</td>
<td>10.9</td>
<td>24-27 +234%</td>
<td>33-36 +317%</td>
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<tr>
<td>Scottsbluff</td>
<td>5.3</td>
<td>18-21 +368%</td>
<td>27-30 +538%</td>
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</table>
water & irrigation future

- Neb water withdrawals expected to increase 25-50%
- Assume seed companies will do pretty well in continuing to make crops more drought tolerant
- Nonetheless, expect irrigation ground water use to increase substantially
- Will lead to ground water level declines in some if not most heavily irrigated areas
- Irrigators will change crops grown, reduce acres irrigated acres, etc. when well yields decline
- Some areas will eventually revert to dryland production down the road

questions? 😊

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Thank you! 😊