Equipment Needs for Feedstock Production

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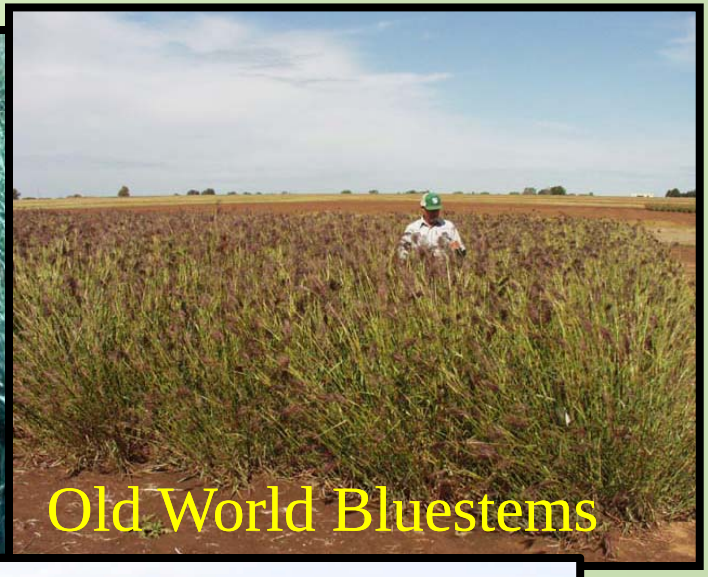
Perennial Grasses

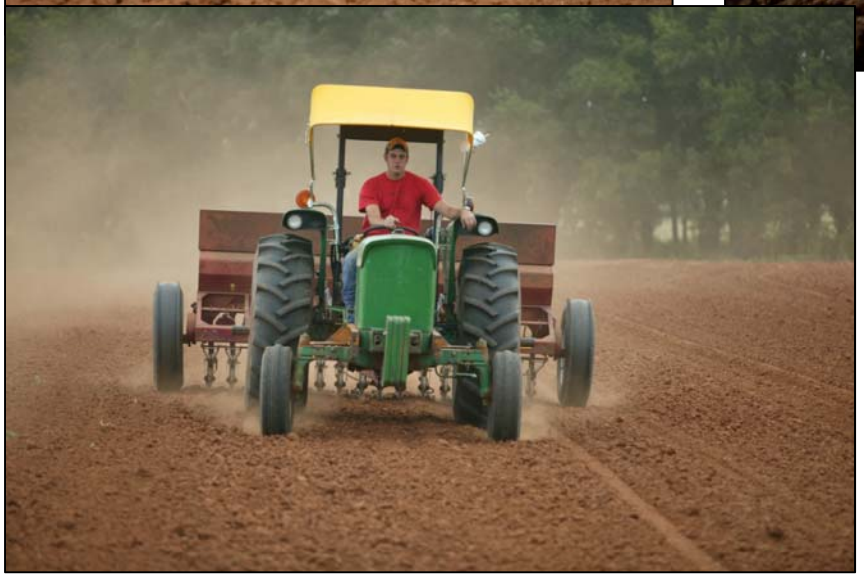


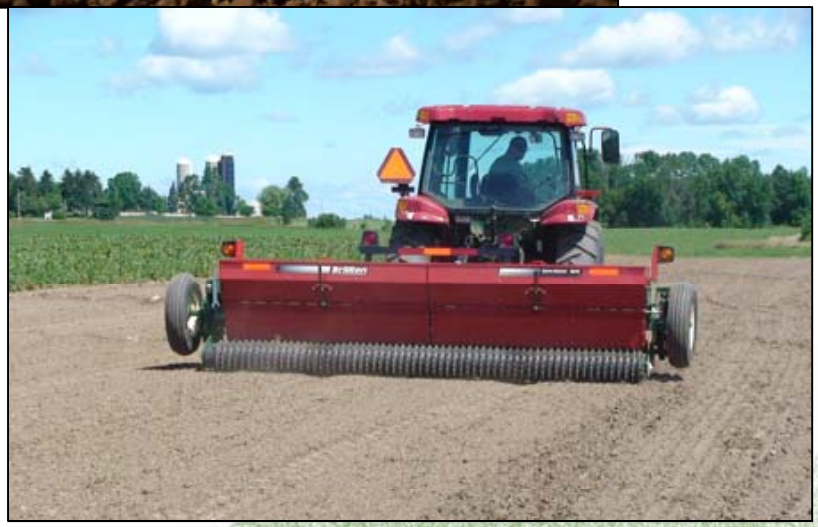
Perennial grass crop – tilled soil

- Weed control
  - Preceding year
  - Prior to seeding
- Incorporate surface residues
- Soil surface
  - Uniform for depth control
  - Smooth
  - Firm

Weed control prior to seeding

Seedbed preparation





Perennial grass crop – No till

- Terminate prior crop
  - End of previous year
  - Prior to planting
- At least 50% soil exposure
- Dry soil conditions at planting

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Surface residue & weeds

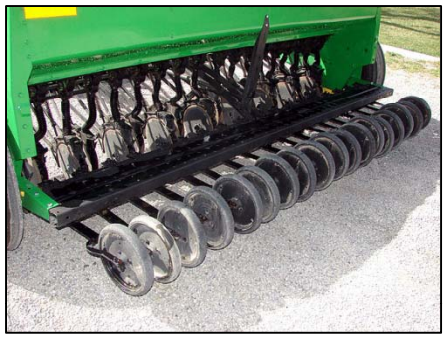
Perennial grasses

Planting

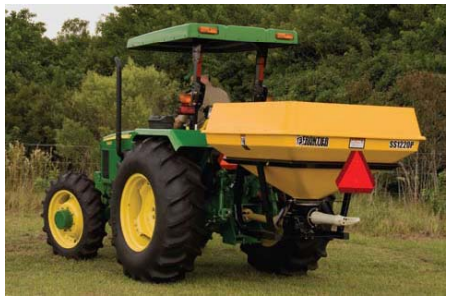
- Depth
  - ¼ - ½ in. fine soils
  - ¾ in. course soils with adequate moisture
- Rates
  - Drill: 5 - 10 lb PLS/A
  - Broadcast: 8 - 14 lb PLS/A (two directions)

Planting

- Equipment
  - Drill
    - Use press wheels
    - Standard grain drills can be problematic



  - Broadcast



    - Rolling/Cultipacking (before? / after)

Weed control

- Chemical
  - Grassy weeds prior to planting
  - Broadleaf control at 4-leaf stage
- Mechanical
  - Mowing above growing point
  - Cultivation?

50 MGY Cellulosic Biorefinery

75 gal/ton = 667,000 tons of biomass

Yield (T/A)	:	Total Acres (x1000)
2	:	333
3	:	222
4	:	167
5	:	133
6	:	111

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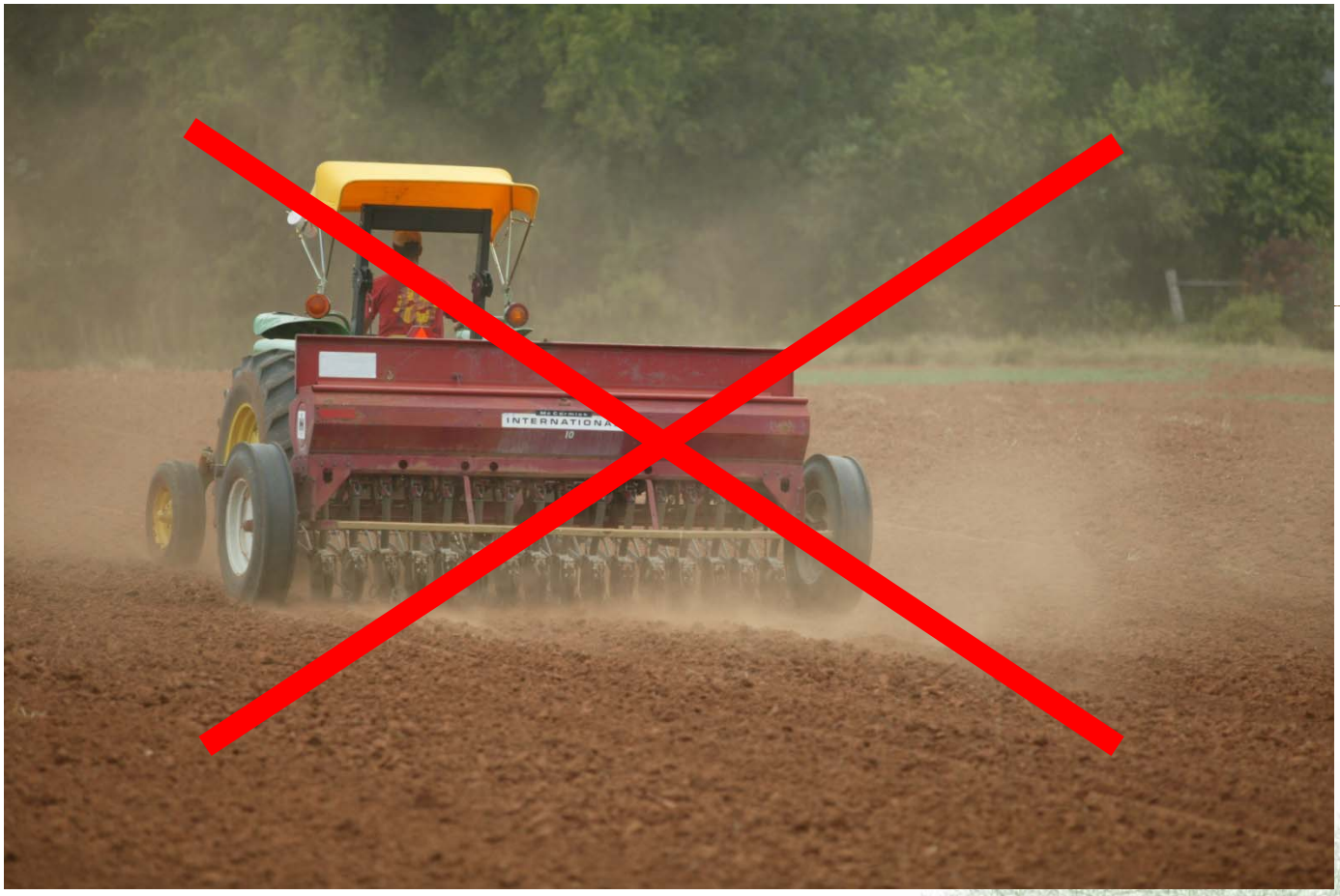
Equipment needs to seed perennial grasses for large biorefineries



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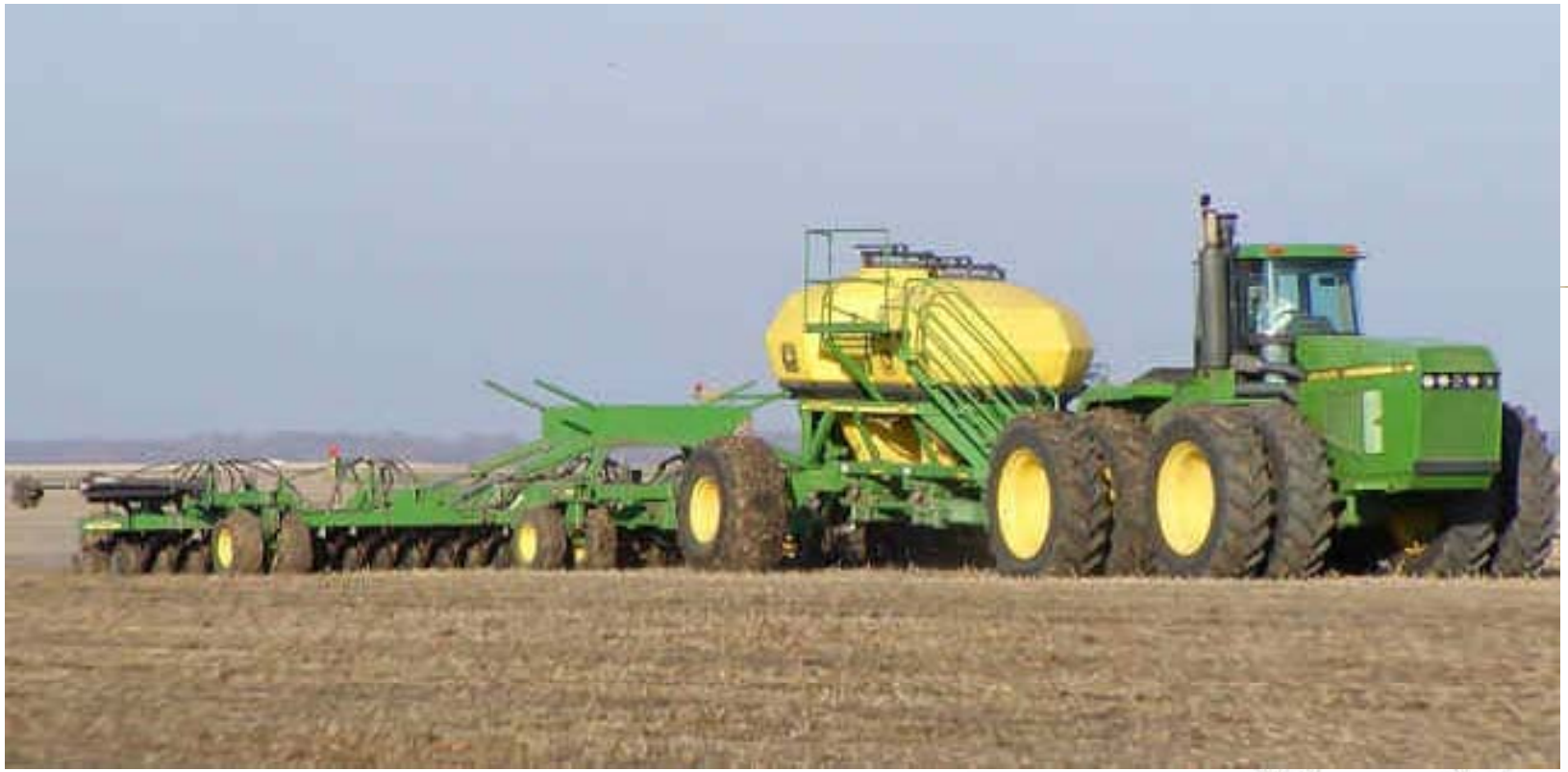
Equipment needs to seed perennial grasses for large biorefineries



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Summary

- Seedbed preparation begins at least one year in advance
- Weed control critical
- Perennial grass establishment requires special attention
- Use proper equipment

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