Economics of Hay Production in Minnesota: Opportunities and Challenges

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Outline

• Hay production in Minnesota
• Economics of alfalfa production
  – Geography of alfalfa supply
  – Geography of primary alfalfa demand
• Challenges of producing alfalfa
Hay Production in Minnesota

- 1.8 Million acres of hay and haylage
  - 70% Alfalfa

- Alfalfa
  - Over $\frac{3}{4}$ is baled as dry hay
  - Avg yield: 3.4 tons ac$^{-1}$

- Primary use is for livestock feed

USDA-NASS
Agronomic Benefits of Alfalfa

• Erosion control
• Reduces populations of annual weeds
  – Depletes the seed bank
  – Reduces emergence
• Rotation-Effect
  – Increases yields
• Provides N-credit

Economic Benefits of Alfalfa

- Alfalfa
  - Greater net return on average in the last 10yrs
  - Less variability (ie. Risk)

10-yr Avg: $182  $96  $103
Economic Benefits of Alfalfa

Survey Data

- Greater net return on average in the last 10yrs
- Less variability (ie. Risk)

10-yr Avg: $182 $96 $103

Avg land cost: $70 $104 $120
If **Alfalfa** has so many **benefits**, AND is more **profitable** with less **risk**, why don’t more farmers grow it?

Take a closer look
Where is Alfalfa grown?
Where is the Demand?

Primary Demand

Counties with more than 5000 milk cows (2016)
- Less than 5000
- More than 5000

Counties with more than 4000 beef cows (2016)
- Less than 4000 beef cows
- More than 4000 beef cows

USDA-NASS
Supply is Localized to the Demand

Milk Cows

Beef Cows

Hay Production

USDA-NASS
Transportation Costs Add Up

• For example, growing alfalfa in:
  – Stearns county: local market
    • 10mi transport x $2 loaded mile = $20 per load
    • ~$3 ac$^{-1}$ avg.
  – Faribault county: no local market
    • 160 mi transport x $2 loaded mile = $320 per load
    • ~$44 ac$^{-1}$ avg.
Hay Quality is Important

- Hay auction reports (Sauk Centre) from this spring have a wide range in alfalfa prices
  - $30 - $170 ton$^{-1}$ for alfalfa
  - Net return range: -$268$ to $352$ ac$^{-1}$ (avg. yields)

- What about poor quality hay?
  - Does not pay to transport very far
  - Need beef cattle or other livestock nearby
Equipment and Repair Costs are Greater for Alfalfa Production

**Equipment Cost ($ ac$^{-1}$)**

- Alfalfa: $160 ac^{-1}$
- Corn: $120 ac^{-1}$
- Soybean: $80 ac^{-1}$

**Repair Costs ($ ac$^{-1}$)**

- Alfalfa: $50 ac^{-1}$
- Corn: $40 ac^{-1}$
- Soybean: $20 ac^{-1}$
More Labor for Alfalfa Production

- Growing alfalfa takes more time
  - Alfalfa labor is during the summer
  - More difficult to go on vacation
- Corn and soybean labor is primarily in the spring and fall
Challenges with Growing Alfalfa

• Economics and Marketing
  – No price-discovery or futures market
    • Difficult to hedge risk
  – Primarily local market
    • Private sales are risky
    • Few hay auctions, especially in S. MN
    • Transportation costs can be substantial
      – Uneconomical to transport poor-quality hay
  – Need to be able to “feed your mistakes” locally
  – Difficult to get consistent, high-quality hay
    • Assume at least 1 cutting will be rained on
Challenges with Growing Alfalfa

• More work than annual crops
  – More labor, equipment, and repair costs per acre
  – Aging farmer population (Average MN farmer is nearly 60)

• Requires specialized equipment Different planting equipment,
  – Requires hay-bine, rake, baler, loader tractor / skidloader, trailer
  – Different storage facilities

• Less flexibility with perennial crops
  – Large percentage of rented land

• Potential for winter-kill
Questions?

Useful resources: finbin.umn.edu | quickstats.nass.usda.gov

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Cattle Production in MN

Cattle Inventory (Including Calves) 2016
- Green: 1600 - 18500
- Yellow Green: 18501 - 35500
- Light Yellow Green: 35501 - 60000
- Yellow: 60001 - 94000
- Orange: 94001 - 240000

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