How Many Products Can We Harvest Hemp for at One Time?

Maximizing or hemp harvest potential

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Considerations?

- What equipment is readily available?
- What production practices do I want to use?
- Who is going to buy my harvest?

- But really, using the crop for multiple purposes just makes hemp a common agricultural crop!
- Did we mention who is going to buy the harvested components?
To Till or not to Till: Emergence and Cover
Fiber as a stand alone crop

- Always grow dual purpose varieties: Felina 32, Anka, and a handful of others varieties
- Weather the past 3 growing seasons has been a significant factor in fiber yield
- Weather has not interrupted fiber harvest
- Harvest is a higher quality of bast fiber (textile grade) as opposed to harvesting later with grain/fiber dual crop
Is hemp for fiber a profitable crop? (Based on 2019 economics)

Compared to a hay crop:

<table>
<thead>
<tr>
<th></th>
<th>Hemp</th>
<th>Alfalfa</th>
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<tbody>
<tr>
<td>Seed Cost ($/ac/)</td>
<td>150</td>
<td>40</td>
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<tr>
<td>(per year assuming 3 years of alfalfa)</td>
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<tr>
<td>Average Yield (ton/ac)</td>
<td>1.4 - 1.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Price Per Ton ($)</td>
<td>700</td>
<td>170 - 200</td>
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<tr>
<td>Net ($)</td>
<td>830 - 1180</td>
<td>368 - 440</td>
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Assumptions

- Only keeping alfalfa for 3 years, otherwise seed cost per year is decreased.
- Using a grain/fiber seed variety that will average 7-9 ft instead of a fiber only variety that will reach 11 ft as the seed for fiber varieties are significantly more expensive.
- All equipment and fertility costs are the same.
Grain as a stand alone crop

- 3 years of nitrogen rate trials with varying successes
- Varieties have included CFX, Felina 32, Anka, Altair and Ferimon
- Planting dates were later than desired each year - not as critical for grain yield as it is for fiber yield.
- Equipment needs are substantial (harvest, cleaning, drying)
Grain trials

- A Ferimon Manure + topdress
- B Altair Manure + topdress
- C Altair Manure only
- D Ferimon Manure only
- 1-6
  - Purple 125 lbs N
  - Yellow 75 lbs N
  - Blue 150 lbs N
Grain Yield

This is hand harvested not combine harvested therefore trends are accurate but values may not be
New Problems for 2019

- Vivipary
- Case-Bearing Beetle
But What About Dual Purpose Grain and Fiber?

- Harvest Date
- Retting Potential
- Fiber Purpose
Logistics of Dual Purpose Grain and Fiber

- When harvesting grain, combines work most effectively when taking in as little extra stalk material as possible
- Remaining stalk is left standing in the field
- Harvest at the same time un-ret?
- Potential for winter retting? But What about cover crops?
After harvesting for grain

- Approximately 30 inches left standing in the field
- Thickest part of the stalk
- No leaves or other biomass to die back
- 2019 Data suggest on average, regardless of fertility unless weed competition was a problem, 0.5 ton/acre remaining
- Giving an additional $350 per acre with minimal added labor and equipment costs
Dual Purpose Concerns

Harvest Time / Retting time

Average Daily Temperature

Daily Rainfall

Days of 2019

Average Daily Temperature (°F)

Average Daily Temperature

Daily Rainfall

January

February

March

April

May

June

July

August

September

October

November

December
Dual Purpose Fiber or Grain + CBD

- Is there a “best time” for CBD harvest?
- Is one method easier machinery wise?
- What about the high CBD neighbors? Is one method more friendly to them or not?
Fiber Harvest
Dual Purpose Grain/CBD

Treatment

A
B
C
D

Felina Early
Felina Late
Santhica Early
Santhica Late
Dual Purpose Grain/CBD

![Graph showing "FLOWER" YIELD LB AC\(^{-1}\) for different treatments.]

TREATMENT

- a
- b
- c
- d

YIELD

- Felina 32
- Santhica 70
A quick economic “what if”

- So say you can get $0.20 per pound / per %CBD
- If the crop averages 5% CBD
- And the collected biomass is 600 lbs / acre
- That is an extra $600 an acre to add to grain yield
- Nobody is retiring on that but the goal should be farm stability not diamonds and rubies
Thank you

This research is made possible by the blood sweat and tears of the summer student hemp interns and by funding from the New York Farm Viability Institute and Empire State Development.