Determining How Much to Charge for a Value-Added Farm Commodity: Shepherd’s Grain Case Study

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Shepherd's Grain is grown by a small group of progressive family farmers dedicated to sustainable agriculture. The grains are produced using direct-seed cropping systems and certified by the Food Alliance.
The Food Alliance

- The Food Alliance is working to ensure "Good Food For a Healthy Future" through third party certification of farmers who:
  - Reduce or eliminate pesticides
  - Conserve soil and water
  - Protect and enhance wildlife habitat
  - Provide safe and fair working conditions.

Becoming a “price-maker”

- Desire to de-commodify their product
- What to charge?
  - Cost plus a fair return on their investment
    - Production costs
    - Return on machinery and land investments
    - Return on labor and management
    - Some percentage of profit
Crop Price Calculator

• Tool developed by Herb Hinman for Shepherd’s Grain
• Determines price to charge for one crop for multiple producers
  ▪ Owner/operator
  ▪ Renter
  ▪ Crop/fallow situation

Allocating Crop Prices Across Varied Farmers & Regions

• Farm land values & productivity will vary
  ▪ Wheat/fallow versus annual cropping
• Investment in machinery, other improvements will vary
• Repair costs, replacement costs will vary
• Land ownership varies
Example 1: 100% Land Owner

- Owner desires 5% return on land investment
- Management fee: 5% of total operating expenses
- Profit: 10% of total operating expense
- Retirement fund: $10,000 per year
- Health insurance premiums: $8,000 per year

Machinery Expenses

- Determine value of current investment
- Determine % of total farm machinery use by this crop -- 40% of the equipment used on this crop
- SG wheat crop is 20% of total farmland
- Annual machinery expense for SG wheat: $210,000 * 40% * 20% = $16,800
Machinery Depreciation

- Value of machinery investment attributable to SG is $16,800
- Desired return on investment at 9% is $1512
- Allocated over 200 acres = $7.56/ac/year
- Alternatively, average annual machinery replacement cost could be used as a proxy for annual depreciation allocated to these acres

Machinery Expenses

- Machinery repair, replacement, insurance, taxes, housing
- Total expenses are allocated to the crop based on:
  - % of machinery used for this crop, e.g. 40%
  - % of farm acreage used for this crop, e.g. 20%
  - $43,750 * 40% * 20% = $3500
  - Allocated over 200 acres = $17.50 per acre
Farm Buildings, Tools, Improvements

- Allocate fixed costs over all acreage
- Example: Value of shop: $50,000
  - Desired return on investment (opportunity cost) of 10%
  - $5,000 per year over entire farm
  - Allocate to SG acreage:
    - $5,000 \times 20\% = $1000/year
      - See CPC W03 Excel file

Wheat/Fallow example

- Fallow expenses must be added
- Interest on preceding fallow year is added to wheat production costs
- Wheat/fallow region
  - Lower rainfall
  - Lower yielding, e.g. 52 bu rather than 72 bu per acre
    - See CPC WSF
Calculating Crop Prices Under Leasing Arrangements

• Landlord gets 1/3 of crop
• Landlord pays 1/3 of crop expenses
  ▪ Fertilizer
  ▪ Crop insurance
• Net landlord share out of operator’s share
  ▪ See CPC WSL

Oregon Grown Biodiesel Case Study:
Engaging Consumers, Helping Farmers
Branding to the end consumer

• Returning a $.14 floor price to the grower
• Providing a reasonable margin to all parties involved in the production and distribution
• All economics involved are Oregon based
Branding to a Specific Consumer

- Providing a stable priced, carbon neutral fuel.
- Growing canola on fields fertilized by biosolids
- Crushing that canola into oil and producing biodiesel to fuel the trucks that deliver the biosolids to the farm.
- Supplying raw oil to SeQuential to produce biodiesel for the city fleets.
Selling to OR DOT: Getting Around Interstate Commerce Restrictions

- Contract has preference for proximity of:
  - Feedstock (canola) production to crushing facility
  - Crushing facility to biodiesel production facility
  - Biodiesel production facility to end-users
- OR farmer with crushing facility on his farm can gain an advantage

**Biodiesel production**

<table>
<thead>
<tr>
<th>Type of oil to use</th>
<th>Volume of oil per batch</th>
<th>Units of Lye</th>
<th>Amount of oil purchased per batch</th>
<th>Amount of Lye purchased per batch</th>
<th>Units of Lye cost</th>
<th>Cost of Lye per gallon</th>
<th>Percent of Methanol to use by volume</th>
<th>Methanol cost per 55 gallon drum</th>
<th>Cost of Methanol per gallon</th>
<th>End cost per gallon</th>
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<tbody>
<tr>
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<td>1000 gallons</td>
<td>8.00</td>
<td>1250</td>
<td>100</td>
<td>1.50</td>
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<td>Canola value per ton</td>
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</tbody>
</table>

Value of meal per pound of canola: $0.0493

Return per acre with biodiesel on the farm: $442.57

Biodiesel plant gross profit at 12 cents purchase price: $220,178
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