UW-EXTENSION SMALL SCALE BIODIESEL PLANT PROJECT COST ANALYSIS

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Table 1. SMALL SCALE BIODIESEL PLANT CAPITAL INVESTMENT

ASSET	NOTES	INITIAL INVESTMENT
Press	Swedish Type 70	$7,700
Furnace	Multi Fuel	$6,410
Hp-100 Biodiesel Processor	Includes scale and testing equipment	$10,500
Dry Wash Tower	Pump and biodiesel calculator	$1,034
Building	20'x40' pole barn with concrete floor @ $15/square foot	$12,000
Building Modifications	Wiring, settling tanks, augers, bins, grain hoppers, etc	$1,500
Other	Pumps and miscellaneous equipment	$400
TOTAL INVESTMENT		$39,544

TABLE 2. PLANT OPERATING ASSUMPTIONS

ISSUE	AMOUNT
Plant Operation Days/Year	182.5 Days
Canola or Sunflower Seed Biodiesel Production/Year	7,300 Gallons
Plant Labor Required/Year (1.25 Hours per 100 Gallons)	91.25 Hours
Gallons of Vegetable Oil Required/Year (1.07 Gallons of Vegetable Oil per Gallon of Biodiesel)	7,811 Gallons
Pounds of Vegetable Oil Required/Year (7.7 Pounds/Gallon of Vegetable Oil)	60,145 Pounds
Pounds of Canola or Sunflower Seeds Required/Year (40% Oil Yield)	150,708 Pounds
Tons Of Canola or Sunflower Meal Produced (1,370 Pounds of Meal/Ton of Canola or Sunflower Seeds Processed)	52 Tons

TABLE 3. OILSEED CROP OPERATING ASSUMPTIONS

ISSUE	AMOUNT
Canola Yield/Acre	2,000 Pounds
Canola Acres Required/Year (If Only Canola Is Used)	75.35 Acres
Total Cost To Produce The Canola Needed (If Only Canola Is Used @ a $283.85 Production Cost/Acre. Includes $85/acre land rent and an $18.75/acre return to management.[1])	$21,388
Sunflower Seed Yield/Acre	2,500 Pounds
Sunflower Seed Acres Required/Year (If Only Sunflower Seeds Are Used)	60.28 Acres
Total Cost To Produce The Sunflower Seeds Needed (If Only Sunflower Seeds Are Used @ a $434.30 Production Cost/Acre Includes $85/acre land rent and an $18.75/acre return to management.[2])	$26,120

[1] Actual 2008 production cost for a Buffalo County, WI on-farm canola test plot

[2] Actual 2008 production cost for a Buffalo County, WI on-farm sunflower seed test plot

TABLE 4. ESTIMATED 2008 COST TO PRODUCE CANOLA AND SUNFLOWER SEED BIODIESEL – NO METHANOL RECLAMATION

COST ITEM	CANOLA BIODIESEL ($/YEAR)	CANOLA BIODIESEL ($/GALLON)	SUNFLOWER SEED BIODIESEL ($/YEAR)	SUNFLOWER SEED BIODIESEL ($/GALLON)
Oilseed Production Cost	$21,388	$2.93	$26,120	$3.58
Methanol (No Reclamation)	$1,022	$0.14	$1,022	$0.14
Potassium Hydroxide	$73	$0.01	$73	$0.01
Oil (For Heat)	$146	$0.02	$146	$0.02
Dry Wash	$73	$0.01	$73	$0.01
Labor ($15/Hour)	$1,369	$0.19	$1,369	$0.19
Repairs (Estimated @ 3 Percent of the Total Initial Investment)	$1,186	$0.16	$1,186	$0.16
Insurance and Misc. Overhead (Estimated @ 3 Percent of the Total Initial Investment)	$1,186	$0.33	$1,186	$0.33
Plant Equipment Depreciation (Economic Depreciation; 10 Year Useful Life)	$2,754	$0.38	$2,754	$0.38
Building Depreciation (Economic Depreciation; 20 Year Useful Life)	$600	$0.08	$600	$0.08
Opportunity Cost of Capital (10 Percent of the Total Initial Investment)	$3,954	$0.54	$3,954	$0.54
ESTIMATED 2008 BIODIESEL PRODUCTION COST	$33,751	$4.79	$38,483	$5.44
Credit for Value of Feed Produced[1]	$11,076	$1.52	$9,464	$1.30
ESTIMATED 2008 BIODIESEL PRODUCTION COST - Credit for Value of Feed Co-Produced	$22,675	$3.27	$29,019	$4.14

[1] The average of the Minneapolis canola meal and prices reported in the September2008 issues of Feedstuffs were used to establish the value of the feed produced. ***Canola Meal = $213/ton. Sunflower Meal = $182/ton.*** The actual value can vary due to differences in quality.

TABLE 5. ESTIMATED 2008 COST TO PRODUCE CANOLA AND SUNFLOWER SEED BIODIESEL – 75 % METHANOL RECLAMATION

COST ITEM	CANOLA BIODIESEL ($/YEAR)	CANOLA BIODIESEL ($/GALLON)	SUNFLOWER SEED BIODIESEL ($/YEAR)	SUNFLOWER SEED BIODIESEL ($/GALLON)
Oilseed Production Cost	$21,388	$2.93	$26,120	$3.58
Methanol	$256	$0.04	$256	$0.04
Potassium Hydroxide	$73	$0.01	$73	$0.01
Oil (For Heat)	$146	$0.02	$146	$0.02
Dry Wash	$73	$0.01	$73	$0.01
Labor ($15/Hour)	$1,369	$0.19	$1,369	$0.19
Repairs (Estimated @ 3 Percent of the Total Initial Investment)	$1,186	$0.16	$1,186	$0.16
Insurance and Misc. Overhead (Estimated @ 3 Percent of the Total Initial Investment)	$1,186	$0.33	$1,186	$0.33
Plant Equipment Depreciation (Economic Depreciation; 10 Year Useful Life)	$2,754	$0.38	$2,754	$0.38
Building Depreciation (Economic Depreciation; 20 Year Useful Life)	$600	$0.08	$600	$0.08
Opportunity Cost of Capital (10 Percent of the Total Initial Investment)	$3,954	$0.54	$3,954	$0.54
ESTIMATED 2008 BIODIESEL PRODUCTION COST	$32,985	$4.69	$37,717	$5.34
Credit for Value of Feed Produced[1]	$11,076	$1.52	$9,464	$1.30
ESTIMATED 2008 BIODIESEL PRODUCTION COST - Credit for Value of Feed Co-Produced	$21,909	$3.17	$28,253	$4.04

[1] The average of the Minneapolis canola meal and prices reported in the September2008 issues of Feedstuffs were used to establish the value of the feed produced. ***Canola Meal = $213/ton. Sunflower Meal = $182/ton.*** The actual value can vary due to differences in quality.