Oilseed Economics

Overview of Production Economics with Historical & Current Conditions

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Burlington, VT

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CULTIVATING HEALTHY COMMUNITIES

Vermont Sustainable Jobs Fund

VERMONT BIOENERGY INITIATIVE

- Installed Capacity: 600,000 gal/yr (5 sites)
  - Initial Cost of $1/gal of capacity
- Fuel Production Cost: $2.13/gal avg
- Meal Production Cost: $340/ton avg
- Greenhouse Gas: 60-100% better than US avg oilseed production (net sink.)
- Energy Return on Energy Invested (EROEI): 4:1
- Model: Cost avoidance – farm production for farm use 1st. **Cost vs. Price**

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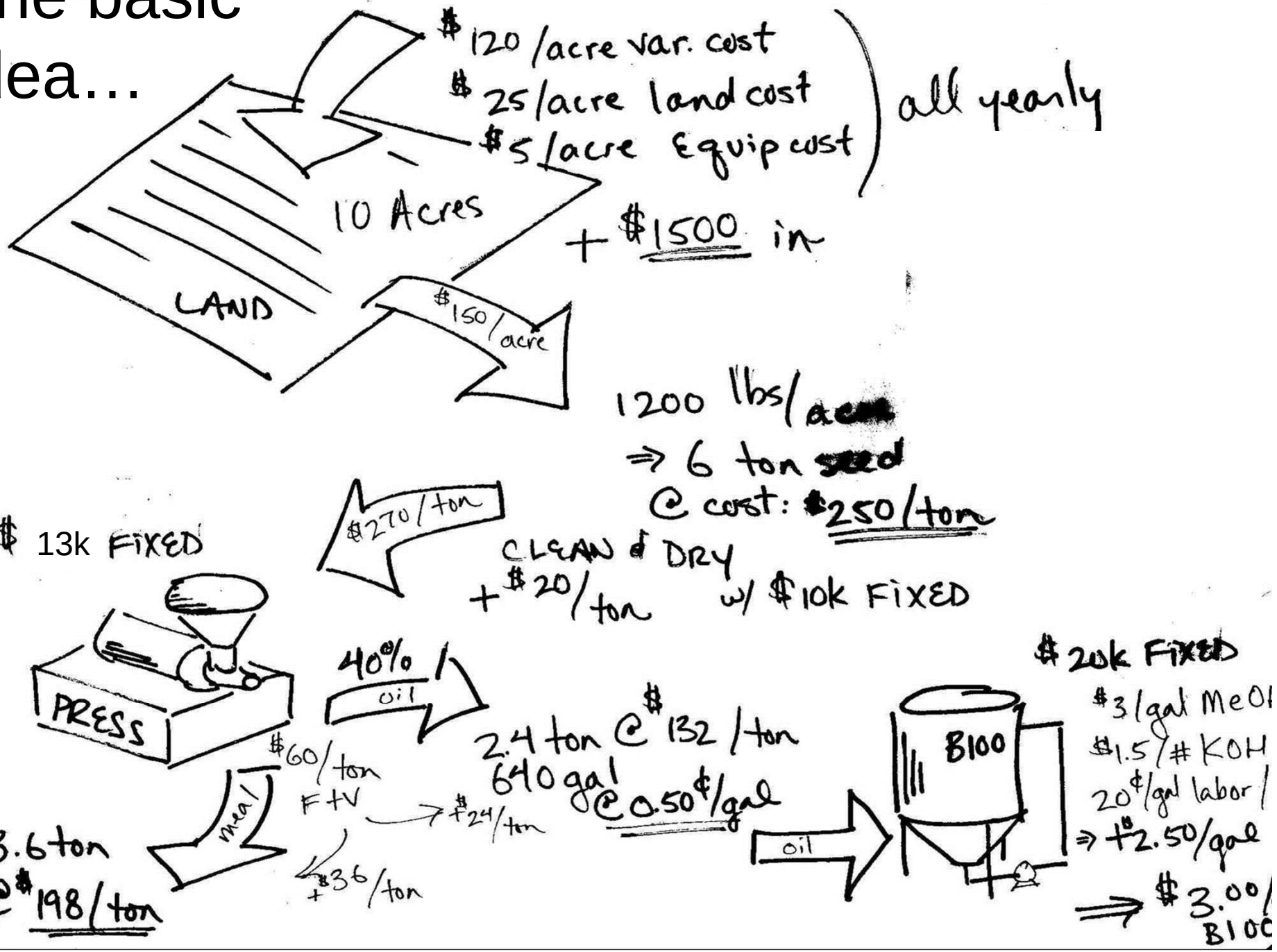
The basic idea…



Vermont Oilseed Crop Production Cost and Profit Calculator

USER INPUTS

1 Title: Generic Case for Checking Math

2 Crop: Sunflower

Total Cropland	10	acres
Acres in Oilseeds	10	acres
Acres in this Crop	10	acres

	Typical	My Farm	
Land Cost	$ 37	NA	/acre/yr

GENERAL INSTRUCTIONS: Enter any specific information you have regarding your farm's operation into the white boxes below. If you do not enter a value in the white box, the "typical" value to the left of it will be used. If you enter "0" instead of "NA" a value of zero will be used. "Typical" values are based on research and collection of data from participating farmers and other published resources and are provided for guidance only. Summary results are displayed on the right of the screen, and you can print a more detailed report by clicking "Print Detailed Report".

3 Yield

	Typical	My Farm	
Yield (Seed)	1100	1200	lbs/acre
Oil Content	44%	40%	
Test Weight	32	NA	lbs/bu (dry)

4 Cost of Production

(Labor, fuel and materials should be included in each item. Equipment cost is carried below)

	Typical	My Farm	
Field Prep (plow & disk)	$ 34.00	$ 30.00	/acre
Fertilizer (applied)	$ 47.00	$ 20.00	/acre
Seed	$ 25.00	$ 30.00	/acre
Planting	$ 6.00	$ 10.00	/acre
Cultivating	$ 8.00	$ 15.00	/acre
Spraying	$ 20.00	NA	/acre
Harvesting	$ 12.00	$ 15.00	/acre
Hauling	$ 1.00	$ 5.00	/acre
OR **Total Cost of Production**	$ 153.00	NA	/acre
Total Being used in Calculator		$ 145.00	/acre
Prod. Equip. Cost	$ 20,000	$ 50	
Prod. Equip. Life	20	1	years
OR **Cost of Raw Seed**	$ 527.27	NA	/ton

5 Costs of Cleaning and Drying

	Typical	My Farm	
Harvest Moisture	14%	8%	% weight
Storage Moisture	8%	8%	% weight
Cleaning Cost Factor	1.5	NA	kWhr/ton
Electricity Cost	$ 0.13	$ 0.14	/kWhr
Labor Cost (Dry/Clean per ton)	$ 15.00	$ 0.00	/ton
Cleaner Cost	$ 4,000	$ 2,000	
Cleaner Life	30	40	years
Drier Cost	$ 12,000	$ 2,000	
Drier Life	20	30	years
OR **Cost of Clean / Dry Seed**	$ 684.92	NA	/ton

6 Cost of Pressing

	Typical	My Farm	
Press Cost	$ 4,000	$ 13,000	
Press Life	20	20	years
Press Capacity	1.0	1.0	ton/day
Press Oil Efficiency	90%	100%	
Press Power Rating	7	6.7	hP
Labor Cost (per ton)	$ 0.75	$ 20.00	/ton
OR **Overall Cost of Hired Pressing**	$ 37.14	$ 60.00	/ton seed
OR **Cost of Purchased Oil**	$ 1.17	NA	/gal
Amount of Purchased Oil		NA	gal/yr

7 Cost of Biodiesel Production

	Typical	My Farm	
Plant & Equip Cost	$ 10,000	$ 20,000	
Plant & Equip Life	30	30	years
Heating Cost	$ 20.00	NA	/mill BTU
Alcohol Cost	$ 1.07	$ 3.00	/gal alc
Alcohol Used	20%	20%	gal / gal oil
Lye Cost	$ 0.80	$ 1.50	/lb lye
Lye Used	0.083	NA	lb / gal oil
Labor Cost (per gal)	$ 0.10	$ 0.20	/gal
OR **Cost of Hired Production**	$ -	NA	/gal B100

8 Market Value of Products

	Typical	My Farm	
Market Price for Seed	$ 362	NA	/ton
Market Price for Meal	$ 139	NA	/ton
Market Price for Oil	$ 5.59	NA	/gal
Market Price for Off-Road Diesel	$ 2.24	NA	/gal
Net Market Value of Other Potential Bi	$ -	NA	/acre

	Typical	My Farm	
Value of Seed	$ 199	$ 217	/acre
Value of Meal	$ 43	$ 50	/acre
Value of Oil	$ 361	$ 358	/acre
Value of Biodiesel	$ 145	$ 143	/acre

Marketing split (oil vs. biodiesel)	Typical	My Farm	
Sell	0%	NA	raw oil
Convert remaining	100%	NA	to biodiesel

RESULTS

Projected Costs	Typical	My Farm	
Incremental (cost for each step)			
Cost of Production	$ 290	$ 187	/acre
	$ 527	$ 312	/ton seed
Cost of Cleaning/Drying	$ 87	$ 12	/acre
	$ 158	$ 20	/ton seed
Cost of Pressing	$ 20	$ 36	/acre
	$ 21	$ 36	/ton meal
	$ 61	$ 90	/ '000 gal oil
Cost of Biodiesel Production	$ 59	$ 126	/acre
	$ 0.91	$ 1.98	/gal
Cumulative (total cost for each product)			
Cost to Produce Seed	$ 377	$ 199	/acre
	$ 685	$ 331	/ton
Cost to Produce Meal	$ 397	$ 235	/acre
	$ 706	$ 367	/ton
Cost to Produce Oil	$ 397	$ 235	/acre
	$ 1.19	$ 0.59	/gal
Cost to Produce Biodiesel	$ 456	$ 361	/acre
	$ 2.10	$ 2.56	/gal

Projected Profit / (Loss)	Typical	My Farm	
Seed Only (Clean and Dry)	($178)	$18	/acre
Meal Only	($354)	($185)	/acre
Oil Only	($36)	$123	/acre
Meal & 100% Oil	$7	$173	/acre
Meal and 100% Biodiesel	($268)	($168)	/acre
Biodiesel Only	($311)	($218)	/acre
Meal and Oil/Biodiesel split	($268)	($168)	/acre
Seed Only (Clean and Dry)	($1,776)	$184	total
Meal Only	($3,544)	($1,848)	total
Oil Only	($361)	$1,232	total
Meal & 100% Oil	$66	$1,732	total
Meal and 100% Biodiesel	($2,683)	($1,679)	total
Biodiesel Only	($3,111)	($2,179)	total
Meal and Oil/Biodiesel split	($2,683)	($1,679)	total

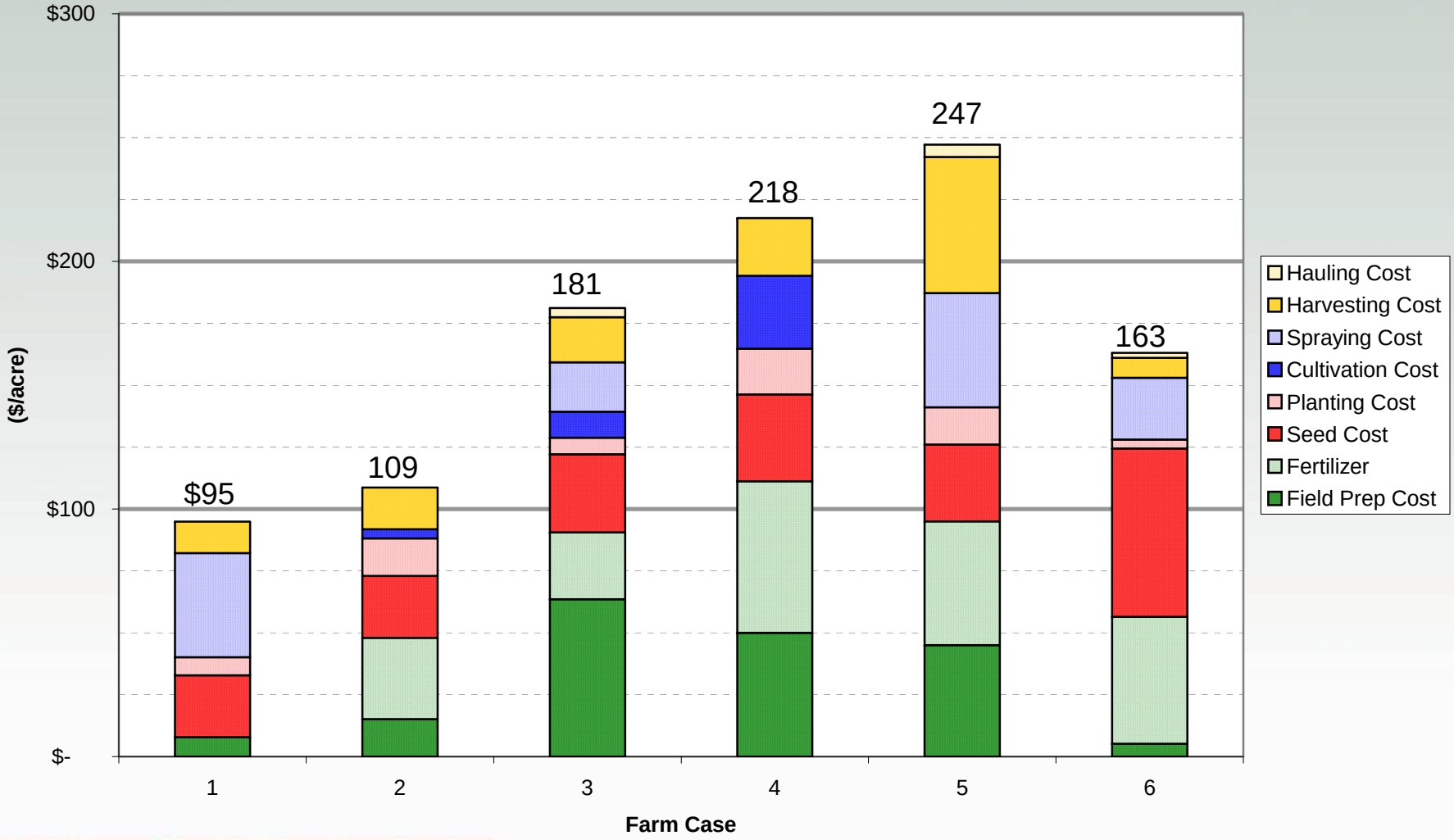
Print Detailed Report | Clear My Inputs

See Instructions | Print Instructions

Release 1.1 - 2010 September 13 (Working Draft)

INPUTS

Cost Breakdown of Oilseed Crop Production
VARIABLE COSTS ONLY



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Summary of Variable Costs of Production

Variable Cost of Production	Sun	Sun	Sun	Sun	Sun	Soy
Field Prep Cost	$ 8	$ 15	$ 64	$ 50	$ 45	$ 5
Fertilizer	$ -	$ 33	$ 27	$ 61	$ 50	$ 51
Seed Cost	$ 25	$ 25	$ 32	$ 35	$ 31	$ 68
Planting Cost	$ 7	$ 15	$ 7	$ 19	$ 15	$ 4
Cultivation Cost	$ -	$ 4	$ 11	$ 30	$ -	$ -
Spraying Cost	$ 42	$ -	$ 20	$ -	$ 46	$ 25
Harvesting Cost	$ 13	$ 17	$ 18	$ 23	$ 55	$ 8
Hauling Cost	$ -	$ -	$ 4	$ -	$ 5	$ 2
Total Variable Production	**$ 95**	**$ 109**	**$ 181**	**$ 218**	**$ 247**	**$ 163**

Areas of significant variation:

-Field Prep (plowing, disking, finishing vs. no-till) $8-$64 /acre

-Fertilizer $0-$61 /acre

-Weed Management (cultivation vs. spraying) $4-$42 /acre

-Harvesting $8-$55 /acre

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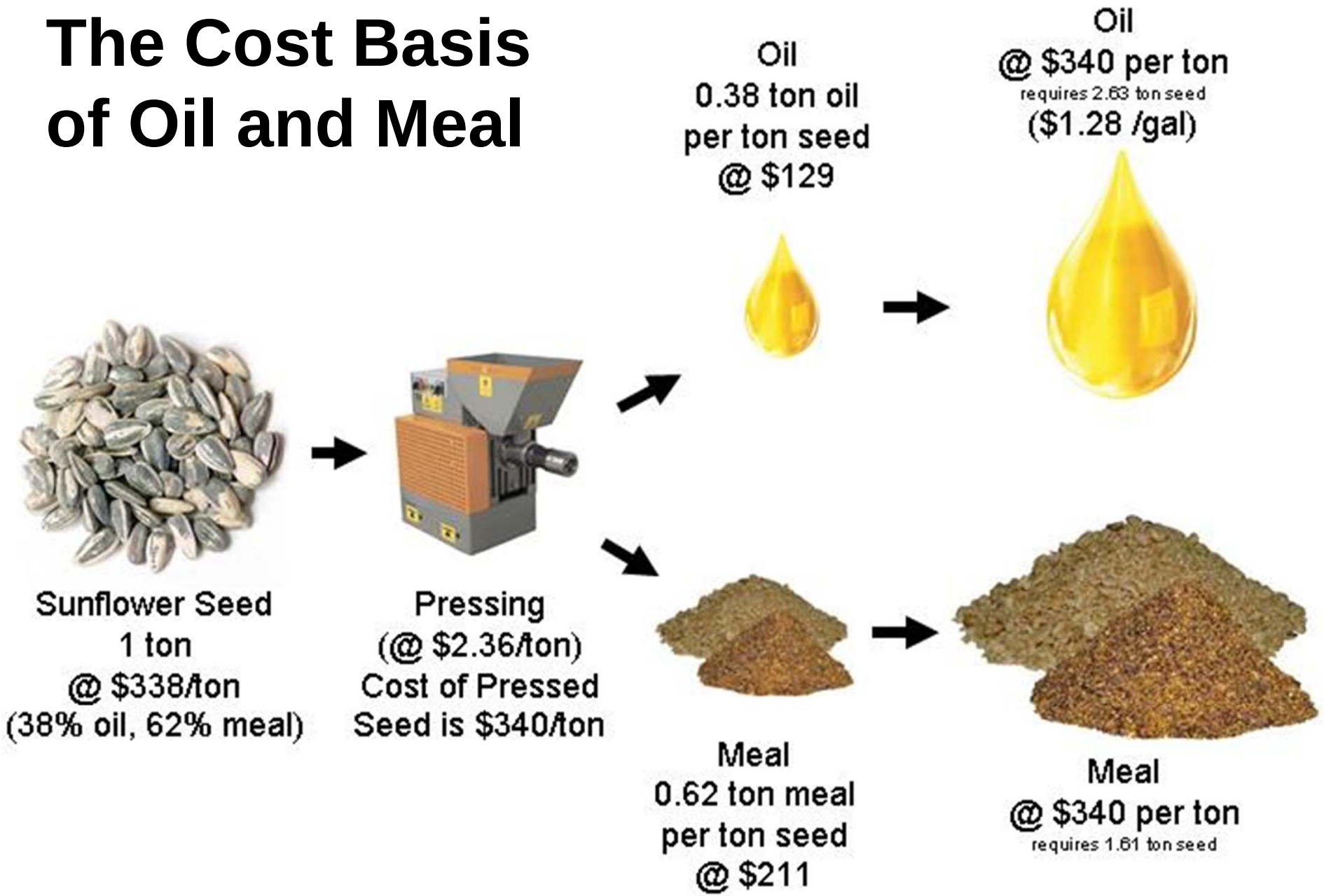
The Cost Basis of Oil and Meal



Costs of Products

Per Ton Seed Harvested	**$ 237**	**$ 304**	**$ 566**	**$ 237**	**$ 808**	**$ 148**
Per Gallon Oil	**$ 0.47**	**$ 0.51**	**$ 0.99**	**$ 0.44**	**$ 1.18**	**$ 0.10**
Per Ton Meal	**$ 202**	**$ 222**	**$ 396**	**$ 191**	**$ 514**	**$ 158**

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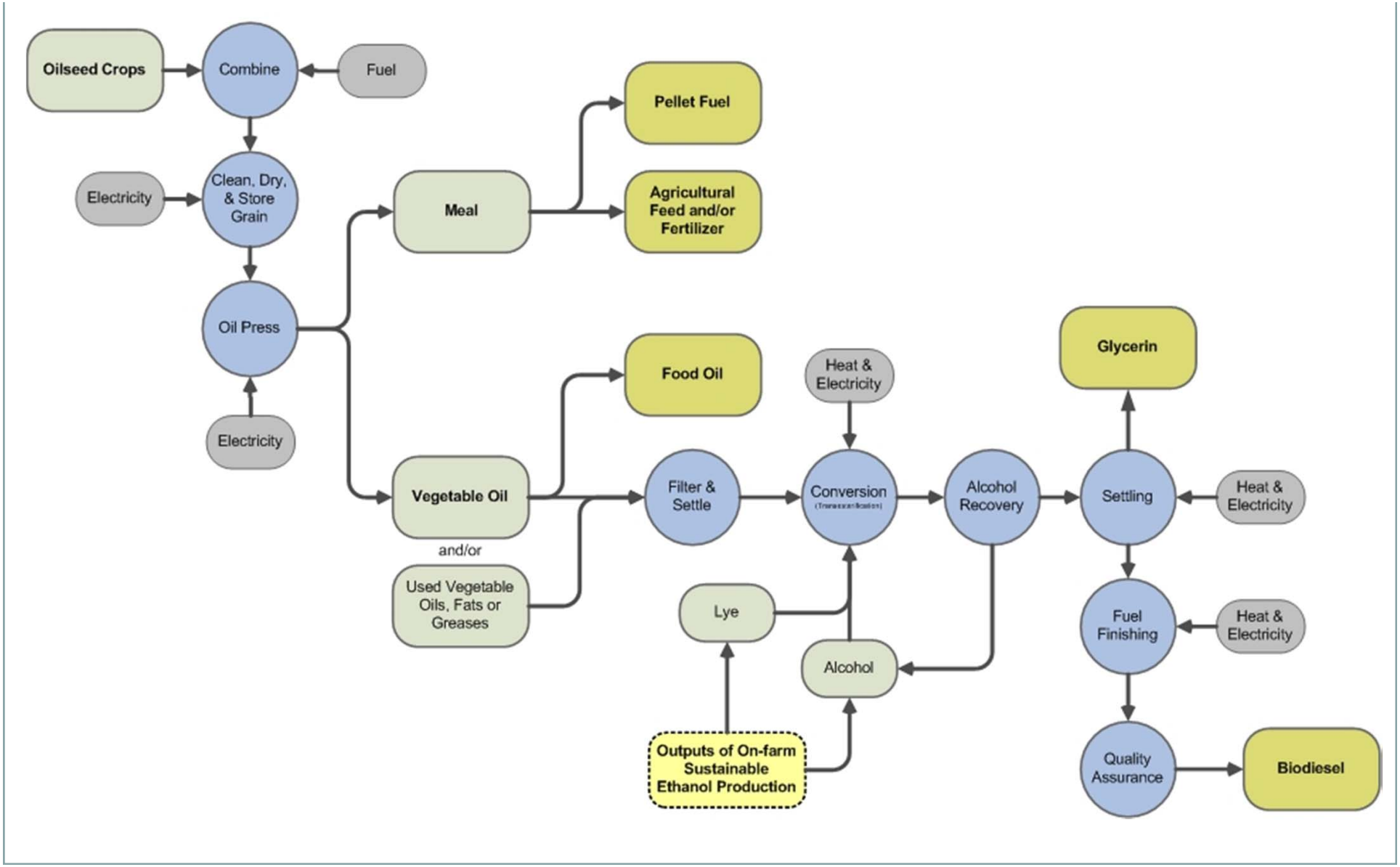
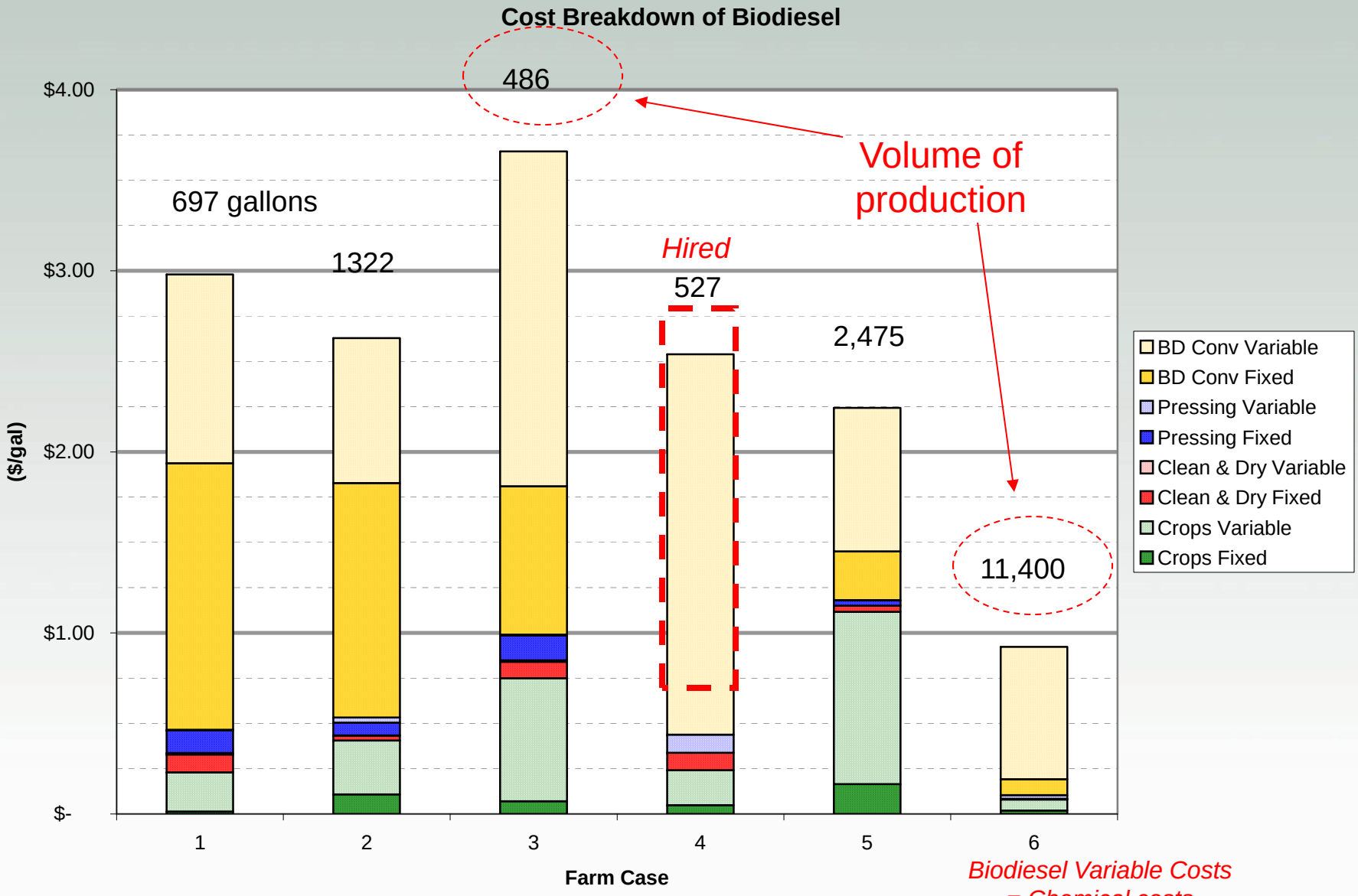
Conversion of Oilseed Crops to Biodiesel and Other Products





Biodiesel Variable Costs = Chemical costs

Assumes conversion of all oil to biodiesel (projected in some cases)

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Impact of Volume (or Acreage)

Acres	Seed	Meal	Oil		Biodiesel
	$/ton	$/ton	$/gal	gallons	$/gal
10	331	367	0.59	640	2.56
100	306	342	0.55	6400	1.59
1000	304	340	0.55	64000	1.49

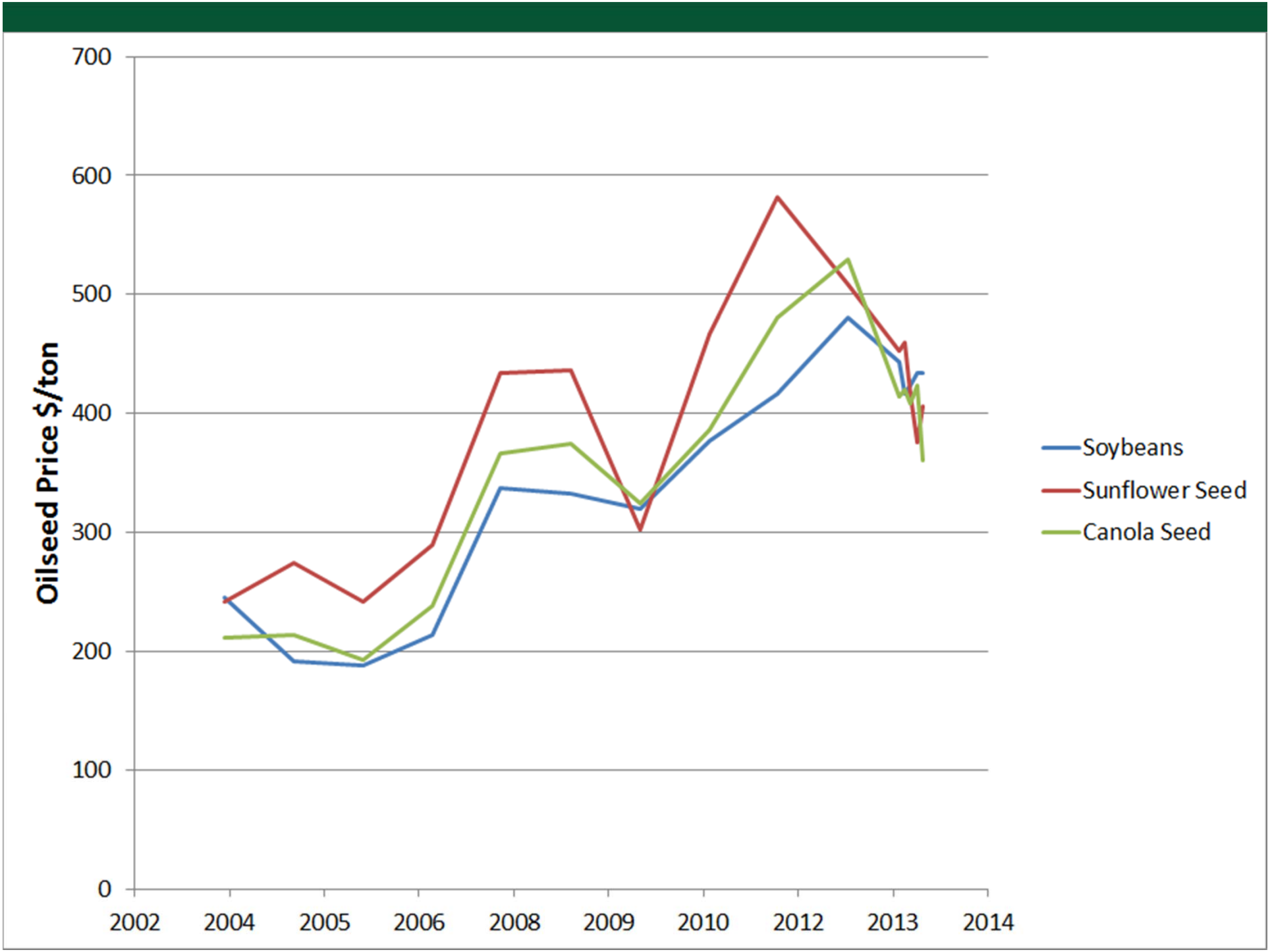
Multiple users of equipment will spread capital costs across more product… drives cost down.

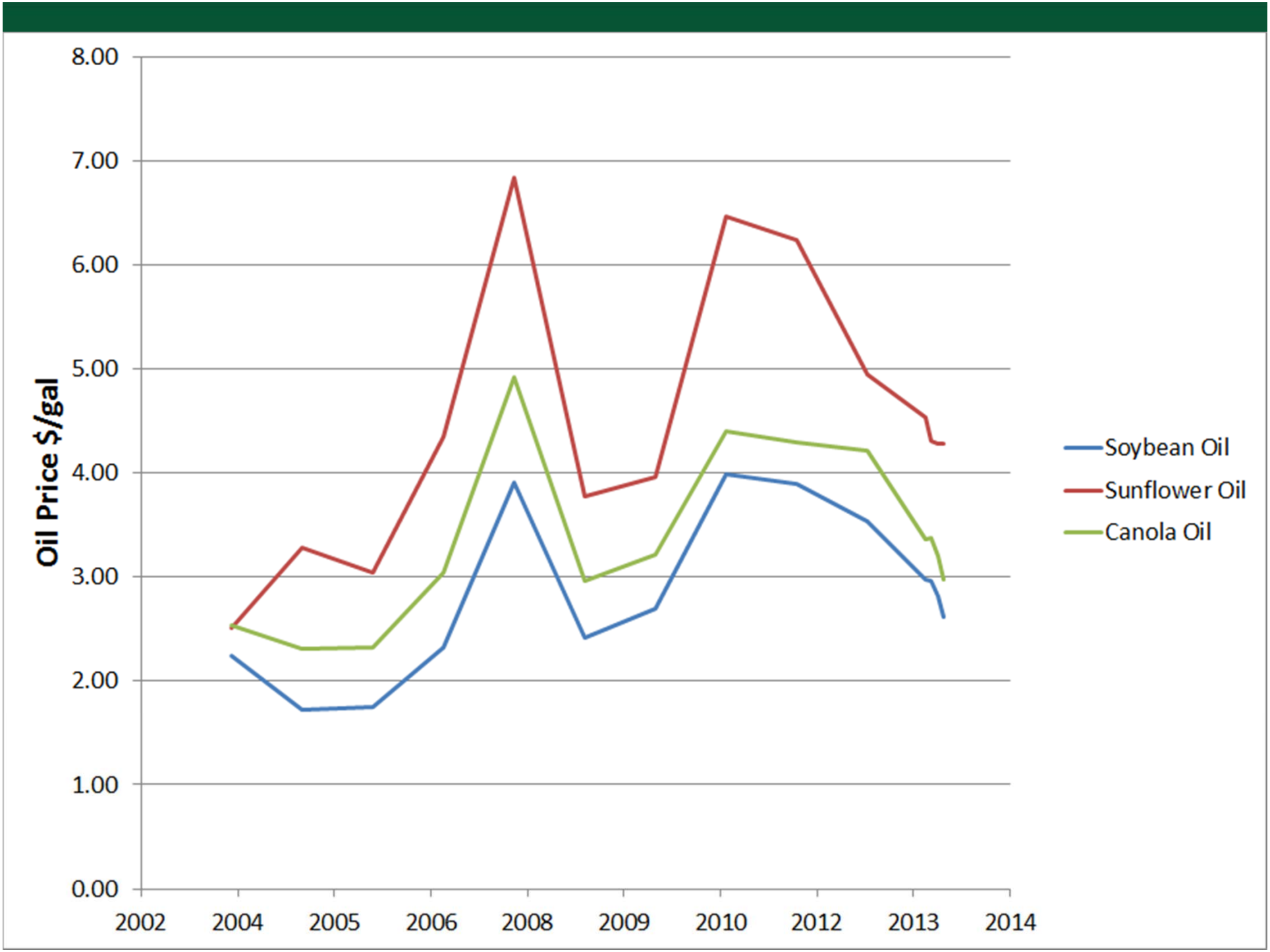
Especially important for biodiesel production.

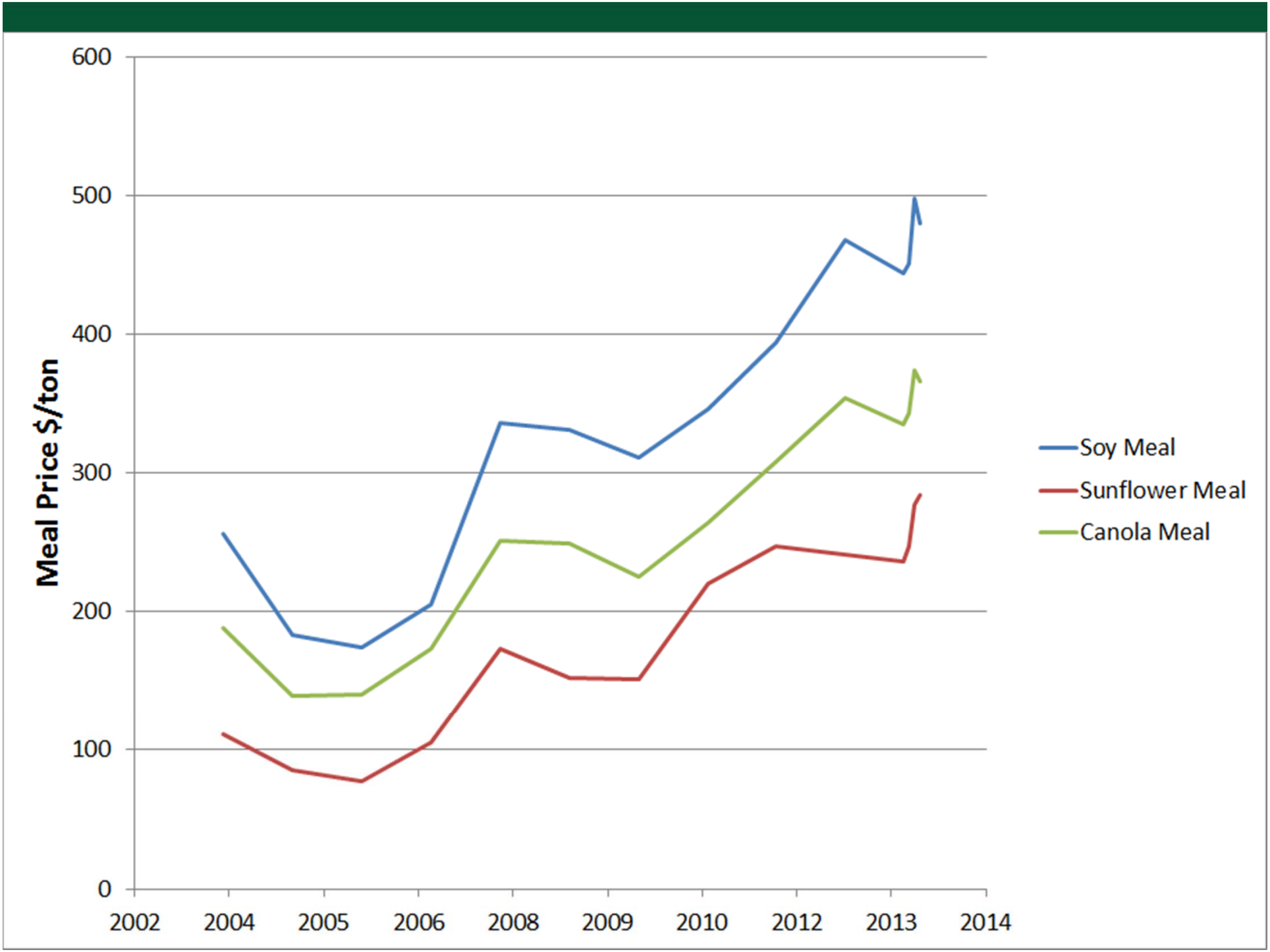
"Always in motion the future is."

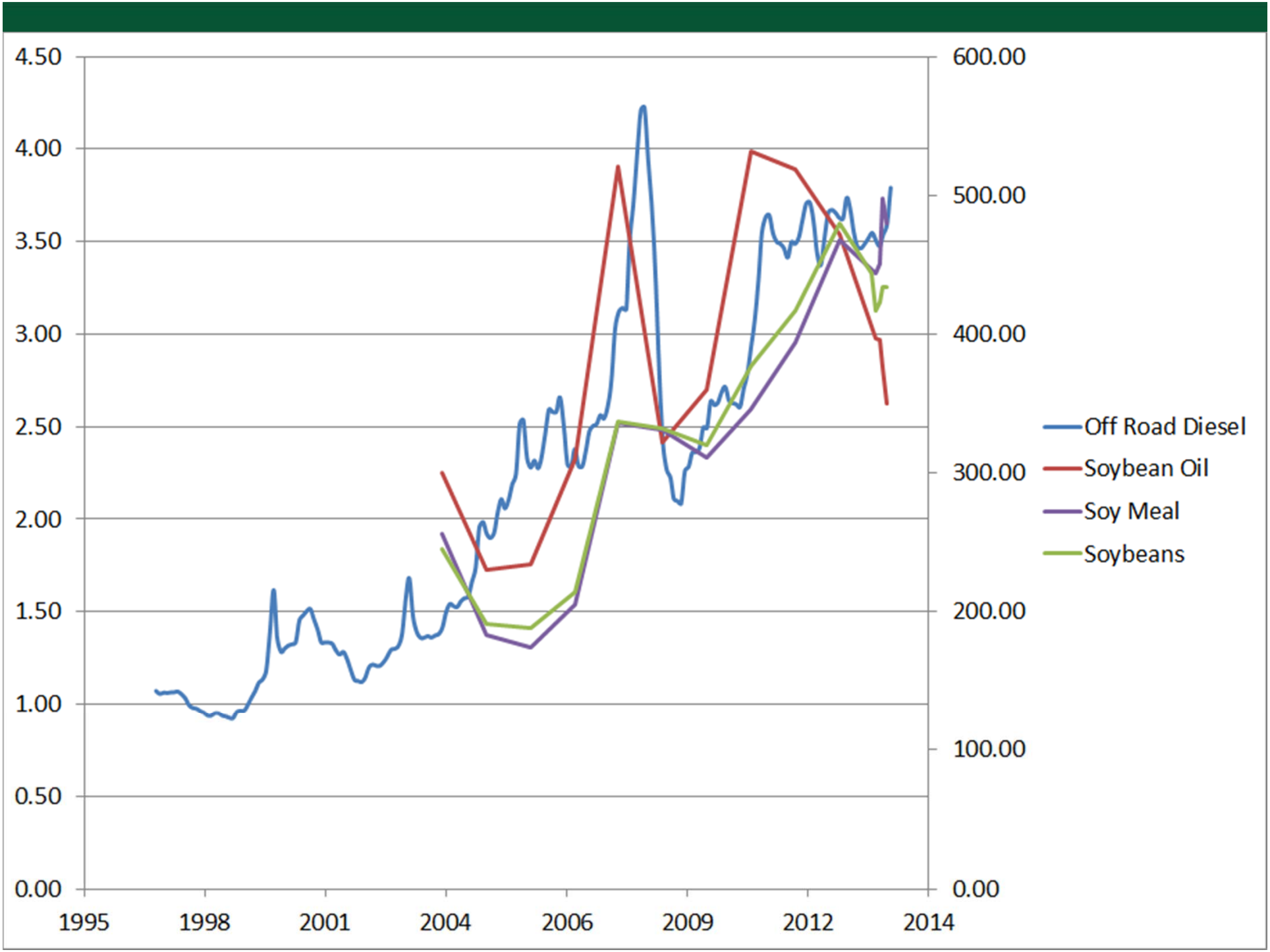
- Yoda


Fuel Price $/gal
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1995
1998
2001
2004
2006
2009
2012
2014


700
600
500
400
300
200
100
0
Oilseed Price $/ton
2002
2004
2005
2006
2008
2009
2010
2012
2013
2014
Soybeans
Sunflower Seed
Canola Seed


8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Oil Price $/gal
2002
2004
2005
2006
2008
2009
2010
2012
2013
2014
Soybean Oil
Sunflower Oil
Canola Oil


600
500
400
300
200
100
0
Meal Price $/ton
2002
2004
2005
2006
2008
2009
2010
2012
2013
2014
Soy Meal
Sunflower Meal
Canola Meal


4.50
4.00
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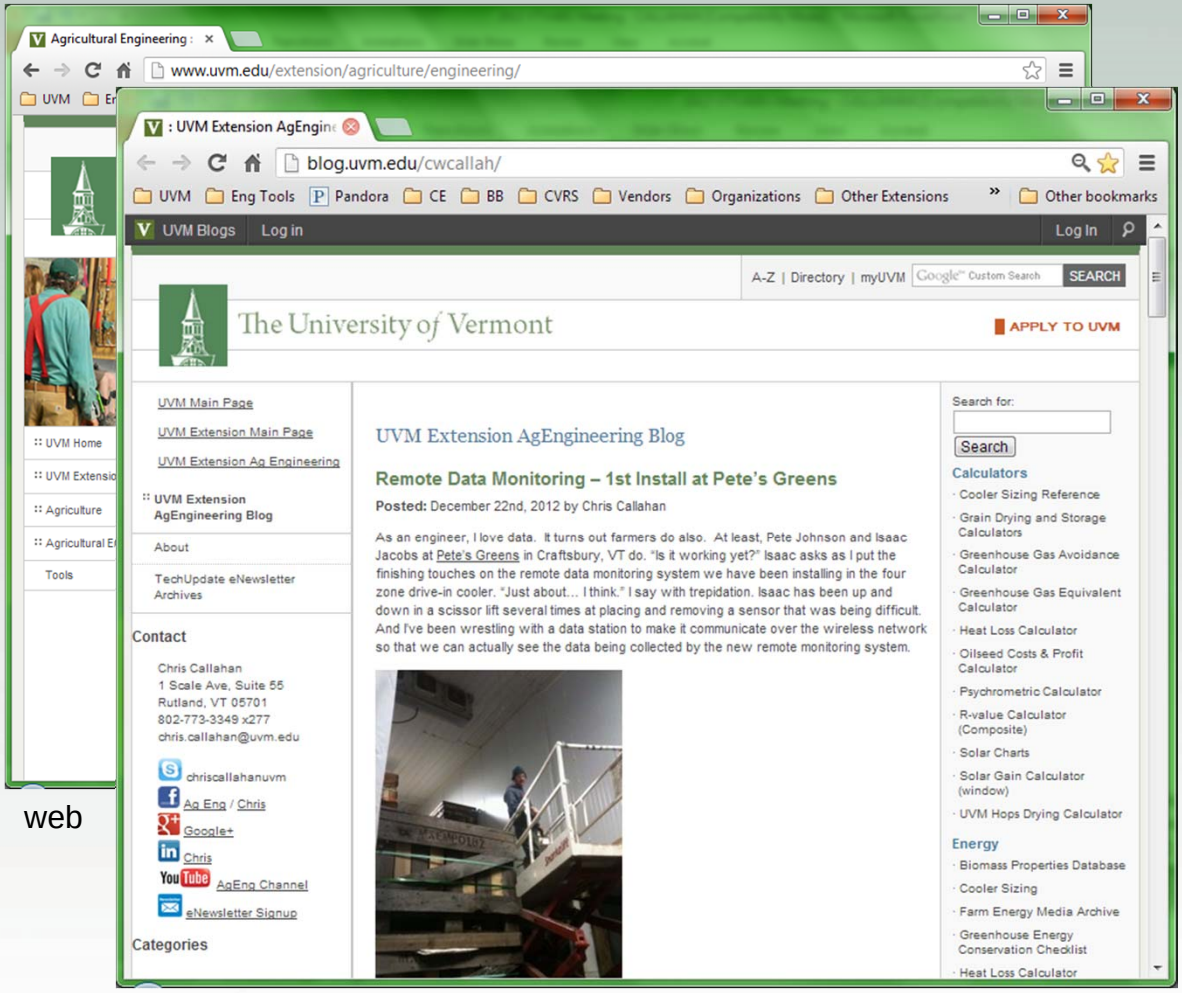
0.50
0.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
1995
1998
2001
2004
2006
2009
2012
2014
Off Road Diesel
Soybean Oil
Soy Meal
Soybeans



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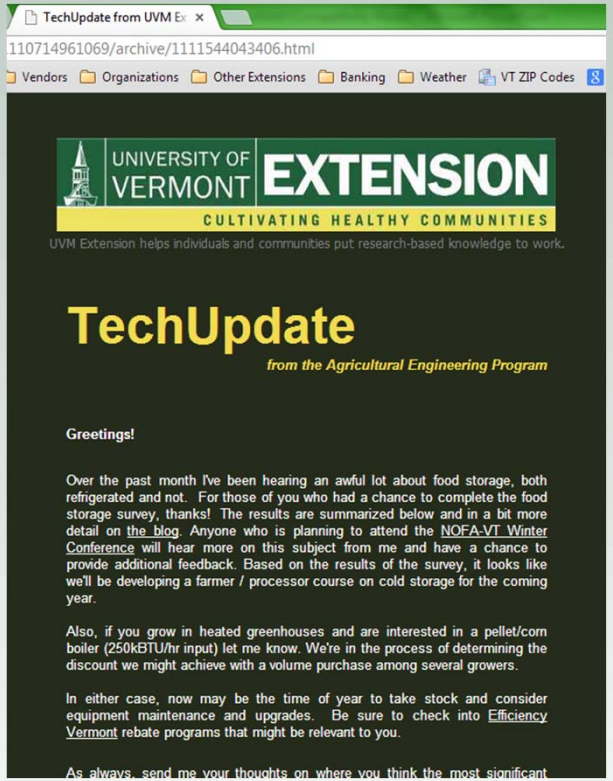

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