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Summary of the 2005 IFCN Cost and Return Estimates, Wheat and Oilseed Exporting Countries

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RESEARCH REPORT

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Background

Wheat and oilseeds are important crops to the Canadian prairies. Although Canada is a major exporter of wheat and canola, it is not necessarily among the largest producers of wheat (Table 1) and oilseed products (Tables 2-3).

Table 1: Major Wheat Producing Countries, 2005

Country_Name	Area Harvested	Production		Exports	
	(1000 HA)	(1000 MT)	Rank	(1000 MT)	Rank
Argentina	5,000	13,000	10	8,200	6
Australia	12,600	24,500	7	16,000	3
Brazil	2,360	4,873	12	807	11
Canada	9,826	26,775	6	16,096	2
China, Peoples Republic of	22,792	97,450	2	1,397	10
EU-25	22,529	122,638	1	15,032	4
India	26,500	68,640	3	801	12
Kazakhstan, Republic of	11,800	11,000	11	3,000	9
Russian Federation	25,400	47,700	5	10,664	5
Turkey	8,600	18,000	9	3,173	8
Ukraine	6,570	18,700	8	6,461	7
United States	20,283	57,280	4	27,467	1

Source: FAS, USDA, P, S & D online database. 6 December, 2006

[1] Much of this document is based on the Agri-benchmark document located at http://www.agribenchmark.org/. Many thanks goes to Frank Plessmann and Yelto Zimmer and the FAL for coordinating data collection and group report, to the many funding agencies listed in the main document and to the many participants. These results are from the IFCN-Grain (FLP 502) project of the Farm Level Agricultural Policy Research Network. Saskatchewan's data contribution and project costs are funded by the Farm Level Agricultural Policy Research Network, AAFC and Saskatchewan Agriculture and Food.

Table 2: Major Rapeseed and Soybean Producing Countries, 2005

Producing Country	Rapeseed				Sunflower				Soybean			
	Meal		Oil		Meal		Oil		Meal		Oil	
	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank
Argentina					1,521	4	40,500	2	25,015	3	6,000	3
Australia												
Bolivia									1,400	10		
Brazil							55,000	1	21,659	4	5,393	4
Canada	1,935	4	1,423	4					1,165	11		
China, Peoples Republic of	8,208	2	4,635	2					27,296	2	6,149	2
EU-25	**8,230**	**1**	**5,945**	**1**	**2,260**	**1**			10,370	5	2,360	5
India	3,609	3	2,287	3					4,325	6		
Russian Federation					2,081	2						
Ukraine					1,880	3						
United States									**37,414**	**1**	**9,250**	**1**

Source: FAS, USDA, P, S & D online database. 18 December, 2006

Table 3: Major Rapeseed and Soybean Exporting Countries, 2005

Exporting Country	Rapeseed				Sunflower				Soybean			
	Meal		Oil		Meal		Oil		Meal		Oil	
	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank	(1000 t)	Rank
Argentina					1,130	2			24,335	1	5,595	1
Australia												
Bolivia									994	5	182	5
Brazil									12,895	2	2,055	2
Canada	**1,488**	**1**	**1,094**	**1**					129	10		
China, Peoples Republic of			134	3			113	7	357	8	105	7
EU-25									650	7	250	4
India	649	2							3,679	4		
Russian Federation					750	3	400	2				
Ukraine					1,337	1	220	3				
United States			214	2			178	5	7,316	3	523	3

Source: FAS, USDA, P, S & D online database. 19 December, 2006

In many agricultural markets, producers have limited ability to compete through product differentiation but instead must rely on cost efficiency. Cost efficiency and cost of production (COP) have been used by some researchers such Sharples (1990) to evaluate industry competitiveness. Past cross-country comparisons of farm level cost of production of North American wheat include Stanton (1986a), Ahearn et al. (1990); Brown (1995) and Glaze and Schoney (1995) but few are comprehensive and include most of the world exporting countries. Moreover, cross-country comparisons are subject to a number of difficulties (Stanton 1986b). The complexity in estimating commodity costs and returns (CAR) standards is perhaps best revealed by the size of the *AAEA Commodity Costs and Returns Estimation Handbook* – it is more than 400 pages long.

The *International Farm Comparison Network* (*IFCN*) was originally created to collect standardized cost and return data across countries. In 2006, the *IFCN* beef and cash crop network groups were shifted to the *Agri-benchmark* project. Primary sponsors of *Agri-benchmark* include the Institute of Farm Economics of the FAL (Federal Agricultural Research Centre) and the German Agricultural Society (DLG). Data collection in each of the member countries is locally funded so that there are many secondary funding agencies.

The Canadian Prairie Cost of Production (FLP 502) Project

The Canadian Prairie Cost of Production (FLP 502) is a joint project between Agriculture and Agri-Food Canada (AAFC), the University of Saskatchewan and Saskatchewan Agriculture and Food (SAF) and in cooperation with the Cash Crop Network (*CCN*) of the Agri-benchmark project. The Agri-benchmark project is an association of agricultural scientists, advisors and farmers. The *CCN* is housed at the Institute of Farm Economics, FAL in Braunschweig, Germany.

The primary purposes of the *CCN* and its partners are to analyze farm level competitiveness across countries and farm types and to provide a forum of discussion between countries. This is accomplished by collecting detailed farm data including farm costs and returns as well as information on other factors affecting overall farm competitiveness. The latter include institutional arrangements and environmental considerations. The *CCN* meets once every year to review data, consider ways to improve data collection and evaluate methodology.

Project Objectives

The primary objectives of this project are to participate in the *CCN*. More specific objectives are to

- further refine data collection techniques,
- develop more appropriate benchmarks and definitions,
- to contribute western prairie grain and oilseed farm data to the project database and
- examine and explain differences in country production patterns and production systems.

Project Status and Paper Objectives

In 2005-06, enterprise data were collected for a total of 70 wheat and oilseed enterprises from 27 different farms located in 12 different countries. Unfortunately not all of the major exporting countries are represented. A notable exception is Australia (wheat and oilseeds). The *CCN* met in the fall of 2005 and reviewed their farm data and the data were subsequently processed during the spring of 2006.

This publication is a summary of the 2005 results. In order to simplify the analysis and presentation, results reported are limited to the contributing major exporting countries. Data are currently being collected and updated for 2006.

Definitions and Limitations

Representativeness of Farms

Note that the following farms do not represent all producing areas, sizes or management levels and hence are not statistically representative of the overall population. Farms are selected by each individual country to represent good management of commercially viable and sustainable units.

Cost Structure and farm cost efficiency

Total farm cost efficiency is assessed based on cost structure. Costs are classified by cash costs, depreciation and opportunity costs of owned resources. The economic opportunity of a resource is the wage or rent that resource could command in its highest and best use. Labour is particularly troublesome in determining its opportunity value. Here, it was valued at the amount which would keep the operator in farming.

The allocation of machinery and overhead fixed or joint costs to a particular enterprise is relatively arbitrary. In addition, rotational benefits are often difficult to measure and assign. In this report, the fixed costs of ownership are assigned based on their crop's relative contribution to total farm returns. Rotational benefits are not valued or assigned.

Profitability

In economic profitability all factors are paid their opportunity value, cash or not. In addition, note that economic profitability of an individual enterprise is particularly problematic because of the difficulties mentioned above: the allocation of fixed costs is relatively arbitrary and rotational benefits are often difficult to measure and assign. Finally, note that economic profitability is complicated by price variability and it is best measured over a period of years for the farm business as a whole.

Input intensity, production systems and typology

While producers traditionally assess costs per hectare, a more useful approach is to assess costs based on a unit output, or tonne. An interesting way to analyze results is to assign each farm enterprise to a use intensity class based on relative seed, fertilizer and plant protection costs per hectare. Next, per tonne costs are compared and analyzed. This allows the assessment of the popular myth held by many low input per hectare producers that intensive producers also have high costs per tonne.

Scientific abbreviations

This publication follows the standard Canadian scientific abbreviations. A metric tonne is abbreviated as *t*; a hectare is abbreviated as *h* and US dollars are abbreviated as US$.

Time period
Also note that these data are based on 2005 conditions and that many prices, costs and exchange rates have changed since then.

More information
For more information please refer to website: http://www.agribenchmark.org/.

Summary of Wheat Results of the Major Exporting Countries

A total of 34 wheat enterprises were collected from 24 farms located in 11 different countries (Table 4).

Table 4: *CCN* Wheat Farms by by Exporting Country and Wheat Variety, 2005

Country	No of Enterprises by Wheat Type					Total Number of Farms
	Durum	HRS	Spring	Winter	Total	
Argentina				2	2	2
Canada	2	4			6	4
Czech Republic			2	2	4	2
Germany				3	3	3
France			3	2	5	2
Hungary			1	2	3	3
Poland			1	1	2	1
Sweden			1	2	3	2
Ukraine			1	2	3	2
United Kingdom				1	1	1
USA			2		2	2
Total Farms	2	4	11	17	34	24

In order to make comparisons more valid, the five minor exporting countries are omitted, and only the six major wheat exporting countries are compared:

Argentina (AR)
United States (US)
Canada (CA)
France (FR)
Germany (DE) and
Ukraine (UA).

From the six exporting major countries a total of 24 wheat enterprises from 15 different farms located in six different countries are compared in this report. *CCN* farms by country and wheat type are listed in Table 5. Note that farm name uses the following nomenclature: 2 character country name, size in hectares and descriptor as to country area, state or soil zone.

Table 5: *CCN* Wheat Varieties by Exporting Country Farms, 2005

Farm Code	Country	Area / Region	Variety (preceding crop)
AR1000BA	Argentina	Buenos Aires	Wheat (conventional)
AR1800BA	Argentina	Buenos Aires	Winter wheat
CA1620SaBr	Canada	Brown Soil Zone, Saskatchewan	Durum
CA1620SaBr	Canada	Brown Soil Zone, Saskatchewan	HRS Wheat
CA2000SaBl	Canada	Black Soil Zone, Saskatchewan	HRS Wheat
CA3240SaBr	Canada	Brown Soil Zone, Saskatchewan	Durum Wheat
CA3240SaBr	Canada	Brown Soil Zone, Saskatchewan	HRS Wheat
CA4040SaBl	Canada	Black Soil Zone, Saskatchewan	HRS Wheat
DE1100MV	Germany	Mecklenburg-Vorpommern	Winter wheat (after beets)
DE1100MV	Germany	Mecklenburg-Vorpommern	Winter wheat (after wheat)
DE1100MV	Germany	Mecklenburg-Vorpommern	Winter wheat (after winter oilseed rape)
DE1200UM	Germany	Uckermark	Winter wheat (after beets)
DE1200UM	Germany	Uckermark	Winter wheat (after peas/rapeseed)
DE1200UM	Germany	Uckermark	Winter wheat (after wheat)
DE260OW	Germany	East Westphalia	Winter wheat (Beets)
DE260OW	Germany	East Westphalia	Winter Wheat (OSR)
DE260OW	Germany	East Westphalia	Winter Wheat (Wheat)
FR150PG	France		Winter Wheat
FR200BG	France		Winter Wheat
UA1730VI	Ukraine		Winter Wheat
UA2250BT	Ukraine		Spring wheat
UA2250BT	Ukraine		Winter Wheat
US1010ND	USA	North Dakota	Spring Wheat
US880ND	USA	North Dakota	HRS (after soybeans)

Summary of results are the following.

Wheat yields

Wheat yields vary considerably from country to country, varying from about 2 t/h in the semiarid regions of North America to about 9 t/h in Western Europe (figure 1).

Input Intensity Production Systems

Based on relative seed, fertilizer and plant protection costs per hectare (Table 6), three basic production systems are identified:

a. *Extensive:* the semiarid areas of the Americas,
b. *Highly intensive*: the EU-15 countries and
c. *Moderately intensive*: the Ukraine.

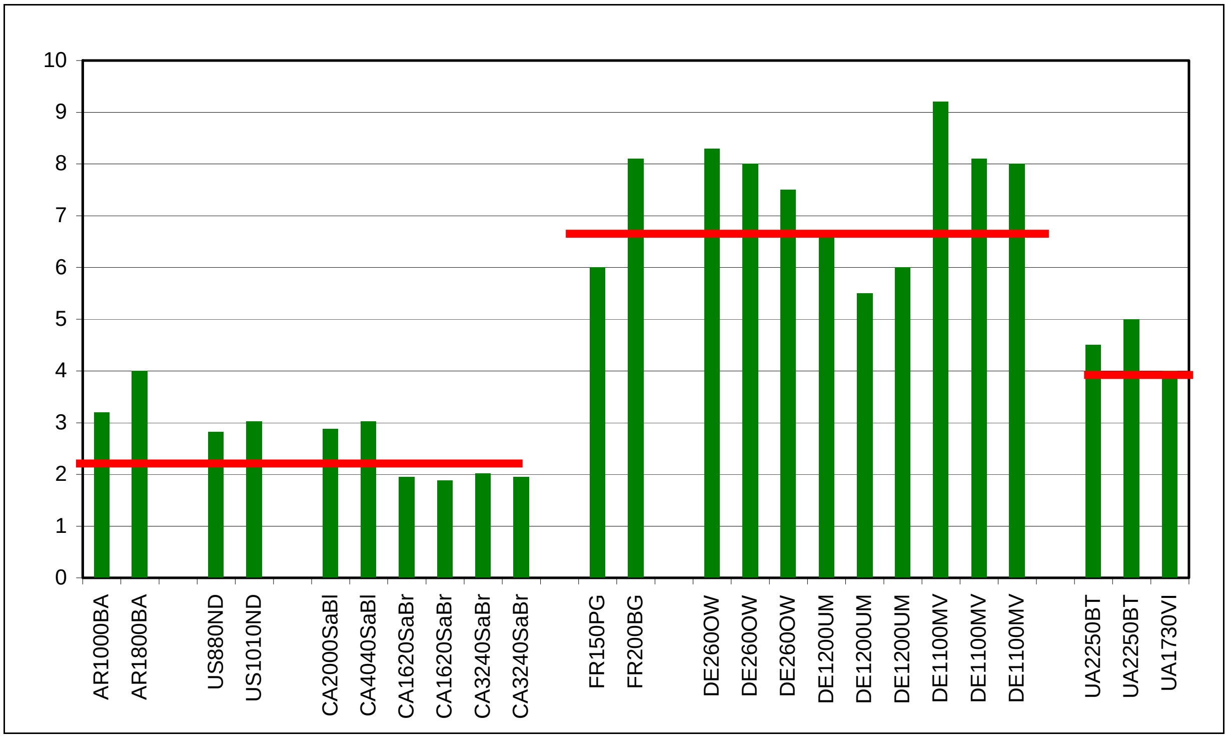

Figure 1: Wheat yields (t/ha) (bar indicates group average)

Table 6: Yield, seed, fertilizer and plant protection characteristics, wheat enterprises

Enterprise characteristic	Units	Input Intensity Group			All
		Extensive	Moderately Intensive	Highly Intensive	
Number of farms		10	3	11	24
Average yield	t/h	2.67	4.50	7.40	5.07
Average seed, fertilizer and plant protection cost	US$/h	116.72	159.13	396.57	250.29

Because the moderately intensive group consists solely of the Ukrainian farms, this group will be omitted in the following analysis.

Farm size

While producers traditionally assess farm size based on surface area or arable hectares, output is much more consistent with other types of businesses. While western Canada and Ukraine had some of the largest farm areas (figure 2a), the considerably higher productivity of the German farms meant that they outpaced the Canadian farms in overall wheat production (figure 2b). A combination of relatively high area and yields put Ukraine farms next in terms of production followed by Argentina.

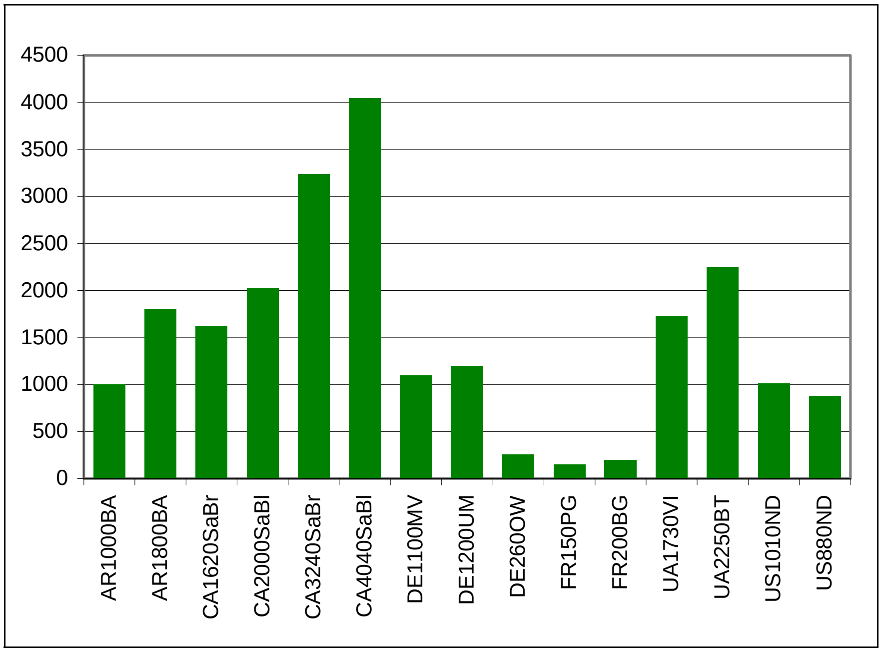

Figure 2a: Total arable area in hectares, wheat farms

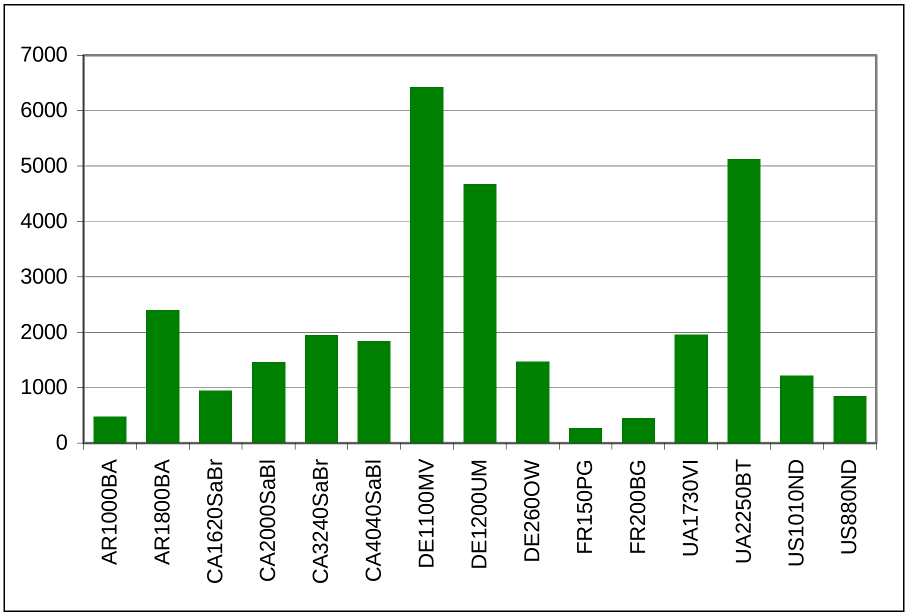

Figure 2b: Total wheat production in tonnes per farm

Seed, fertilizer and plant protection (SFP) costs

SFP costs per tonne of wheat production are displayed in the following figure 3 and a summary by extensive and highly intensive cost group is displayed in Table 7. As wheat yield per hectare varies considerably between countries and area, so do seed, fertilizer and plant protection costs (Table 6). However, SFP costs per tonne vary considerably less.

- The Argentine and Ukrainian wheat enterprises had the lowest SFP costs per tone.
- With exception to the Argentine and Ukrainian wheat enterprises, SFP costs are similar between countries and areas, averaging between 46 to US$54/t.
- SFP costs as a percent of total costs are even more similar averaging approximately 32% of total cost.

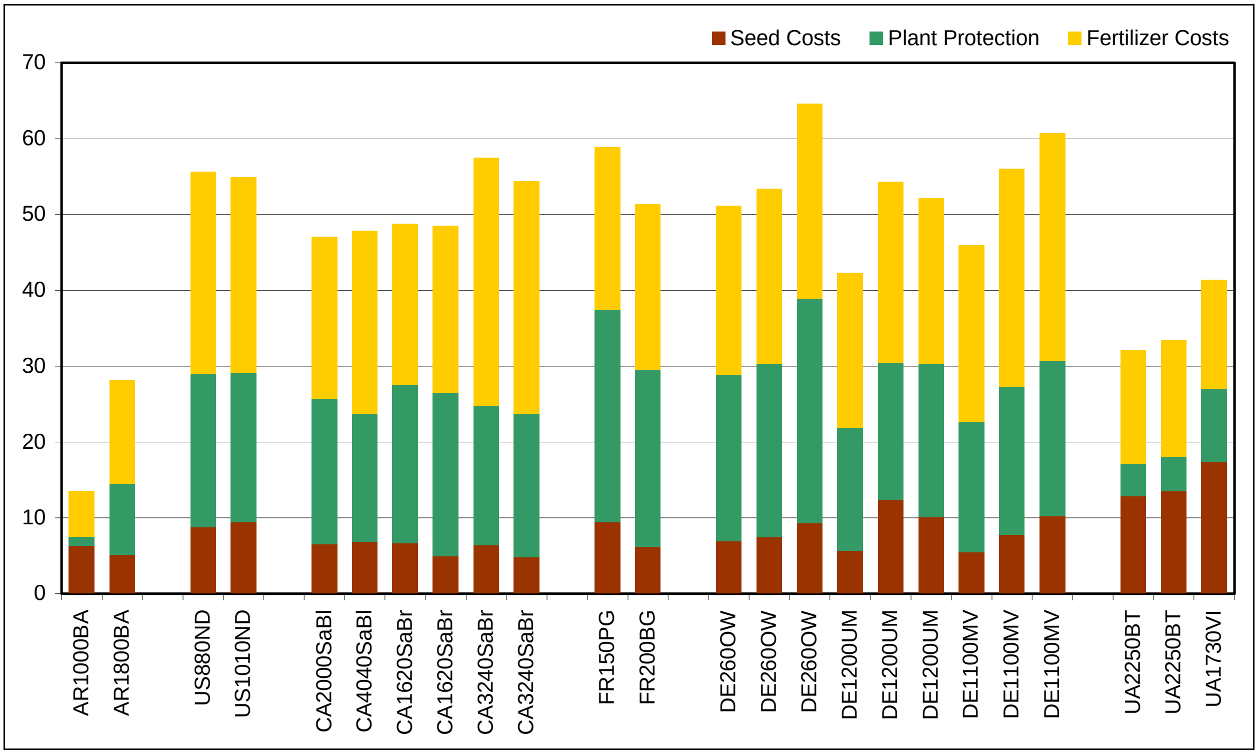

Figure 3: Seed, fertilizer, and plant protection related costs in wheat production (US$/t)

Machinery, building, labour and insurance costs

Of all the various cost categories, the greatest cost differences are associated with machinery, building, labour and insurance costs per tonne (figure 4). Differences are largely due to the number of machinery passes, fuel prices and wage rates.

- The extensive producing countries of Canada, Argentina and the United States feature the lowest cost per tonne. This group averages about US$42/t or about 31% of total costs. These areas incorporate 4 to 6 machinery passes including cultivating/seeding, spraying, windrowing (Canada) and harvesting.
- The intensive producing countries of the EU-15 incorporate 14 to 15 machinery passes generating a cost of approximately US$82/t or about 45% of total cost.

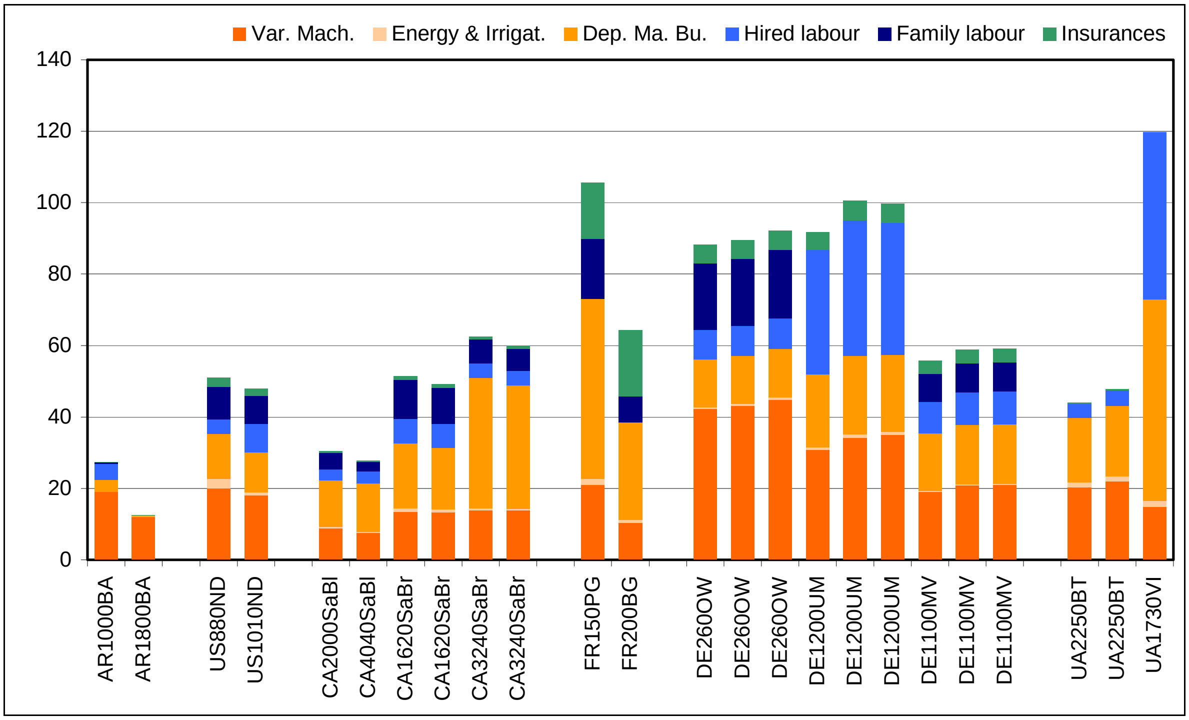

Figure 4: Machinery, labour and insurance costs in wheat production (US$/t)

Table 7: Group average cost of wheat production by country group and cost category

Item	***Cost Group***			
	Extensive		Highly Intensive	
Number of Farms	10		11	
Cost Category	(US$/t)	% of Total Cost	(US$/t)	% of Total Cost
Seed, Fertilizer & Protection	45.63	33.7%	53.71	29.1%
Machine, Building, Labour & Insurance	42.03	31.0%	82.35	44.6%
Total Cost	135.47	100.0%	184.53	100.0%

Total farm cost efficiency

Total farm cost efficiency is assessed based on total farmgate costs displayed in figure 5 and Table 8. Cost structure is divided into cash costs, depreciation and opportunity costs.

Note that comparing wheat costs at the farmgate poses several problems in that a number of farms are located in areas far from an ocean port and, therefore, potential global competitiveness can not be based on these numbers alone. Costs must be adjusted to a common destination and a common variety. Further, the allocation of many fixed costs is somewhat arbitrary and rotational benefits are often difficult to assign. Accordingly, these results must be used with great care.

The results are the following.

- The least-cost producers at the farmgate are located in Argentina, Canada and the Ukraine but these countries are also the farthest from ocean ports.
- The average total cost of the extensive group was approximately US$135/t and the average total cost of the very intensive group was approximately US$188/t.

Total cost and revenue cost structure

Total cost and revenue cost structure are compared in Figure 5. In order to show the potential impact of the various types of costs, cost structure is divided into cash costs, depreciation and opportunity costs.

Revenue structure is divided into market and government program revenue. While it can be argued that in an increasingly globalized agriculture, the law of one price is more likely to rule, local farmgate prices reflect differences in quality, transportation and handling and time of harvest and can, therefore, differ considerably.

In the following Figure 5, a red circle represents the farmgate price per tonne. A diamond represents total returns from the market and from direct government payments. There are significant differences in revenue per unit of output. Germany receives the highest farmgate commodity price (158 US$/t) whereas Argentinean farmers receive just 78 US$/t.

Profitability

In economic profitability is all factors are paid their economic opportunity cost. Economic profitability when measured at the enterprise level suffers from a number fixed cost allocation and valuation problems outlined in the *Limitations* section above. Accordingly, the following results must be used with great care.

Clearly, direct government payments have a major impact on wheat enterprise profitability.

- Without direct government payments, only 5 of the 24 wheat enterprises generated an economic profit.
  - All countries had one or more farms incurring an economic loss.
  - Farms with profitable wheat enterprises include 1 of 2 Argentine farms, 2 of 4 Canadian farms and 2 of 3 Ukrainian farms. The average profit of these wheat enterprises was US$24/t.
  - Average economic losses are -US$39/t for the group of unprofitable wheat enterprises.

- When direct government payments are included, all countries, except the US North Dakota farms had at least one or more farms incurring an economic profit. All countries had one or more farms incurring an economic loss.
  - 12 of the 24 wheat enterprises generated an average economic profit of US$23/t, very similar to the average profitability above.
  - The 12 unprofitable wheat enterprises generated an average loss of -19 US$/t.

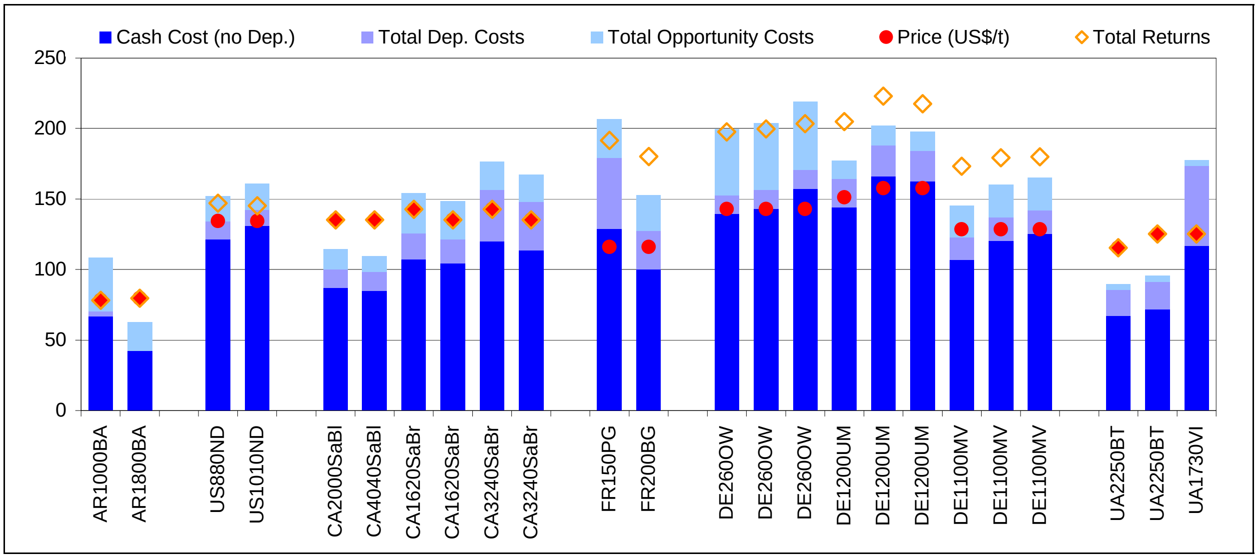

Figure 5: Total cost and returns in wheat production in US$/t (red circle = farmgate price and diamond = total returns from the market and from direct government payments)

Table 8: Wheat Enterprise Profitability

Direct Government Payments	Profitable Farms		Unprofitable Farms		All	
	No	Ave (US$/t)	No	Ave (US$/t)	No	Ave (US$/t)
Excluded	5	23.68	19	-38.67	24	-25.68
Included	12	23.01	12	-19.29	24	1.86

Wheat Conclusions

While caution must be exercised because of the sparseness and lack of statistical representativeness of the data, several conclusions can be drawn for commercial farms.

- First, the intensive use of seed, fertilizer and plant (SFP) inputs per hectare by EU15 producers does not translate into exceptionally higher costs per tonne and even less so when expressed as a proportion of total costs. Input levels appear to be appropriate given the higher total revenue generated per tonne. If direct government payments are decreased, then they will likely approach those of the extensive countries.

- Second, machinery, building, labour and insurance costs per tonne by the intensive countries are higher in terms of both per tonne (almost twice as high) and as a percent of total costs (almost 50% higher). This may make them more vulnerable to higher energy prices in the form of high fuel consumption and indirectly through higher machine prices.

Summary of Oilseed Results

Three major oilseeds are compared: soybeans, rapeseed and sunflower. Data were collected for 32 enterprises from 25 different farms located in 12 oilseed producing countries (Table 9).

Table 9: *CCN* Oilseed Farms by Exporting Country and Oilseed Type, 2005

Country	No of Enterprises by Oilseed Type				Total Number of Farms
	Rapeseed	Soya	Sunflower	Total	
Argentina		1	1	2	2
Brazil		2		2	2
Canada	3			3	3
Czech Republic	2		1	3	2
Germany	3			3	3
France	2			2	2
Hungary	2		3	5	3
Poland	1			1	1
Sweden	2			2	2
Ukraine	1	1	1	3	2
United Kingdom	1			1	1
USA		3	2	5	2
Total Farms	17	7	8	32	25

In order to make comparisons more valid, five minor exporting countries are omitted, and only seven major oilseed exporting countries are compared (Table 10):

Argentina (AR),
Brazil (BR),
United States (US),
Canada (CA),
France (FR),
Germany (DE) and
Ukraine (UA).

From the seven exporting major countries, a total of 20 oilseed enterprise types from 17 different farms are compared in this report. *CCN* farms by country and oilseed enterprise type are listed in Table 10. Note that farm name uses the following nomenclature: 2 character country name, size in hectares and descriptor as to country area, state or soil zone.

Table 10: *CCN* Oilseed Farms by Country and Type, 2005

Farm Code	Country	Area / Region	Oilseed
AR1800BA	Argentina	Buenos Aires	Soybean
BR480DF	Brazil	Brasilia	Soybean
BR1300MT	Brazil	Mato Grosso	Soybean
US600IA	USA	Iowa	Soybeans
US880ND	USA	North Dakota	Soybeans RR
UA2250BT	Ukraine		Soya
CA4040SaBl	Canada	Black Soil Zone, Saskatchewan	Canola RR
CA1620SaBr	Canada	Brown Soil Zone, Saskatchewan	Canola RR
CA2000SaBl	Canada	Black Soil Zone, Saskatchewan	Canola RR
DE260OW	Germany	East Westphalia	OSR
DE1200UM	Germany	Uckermark	OSR
DE1100MV	Germany	Mecklenburg-Vorpommern	OSR
FR150PG	France		Food Canola
FR200BG	France		Non Food Canola
UA2250BT	Ukraine		Canola 00
AR1000BA	Argentina	Buenos Aires	Sunflowers
US880ND	USA	North Dakota	Sunflowers
UA1730VI	Ukraine		Sunflower
US880ND	USA	North Dakota	Soybeans

Summary of results are the following.

Oilseed yields

In order to compare oilseed costs and returns, yields are standardized to a tonne of rapeseed equivalent (REt) according to their processed value relative to rapeseed and taking into account their differing oil and meal contents and values. For sunflower, the RE factor is 1.034 and for soybeans, the RE factor is 0.861. The corrected yields are displayed in the following figure.

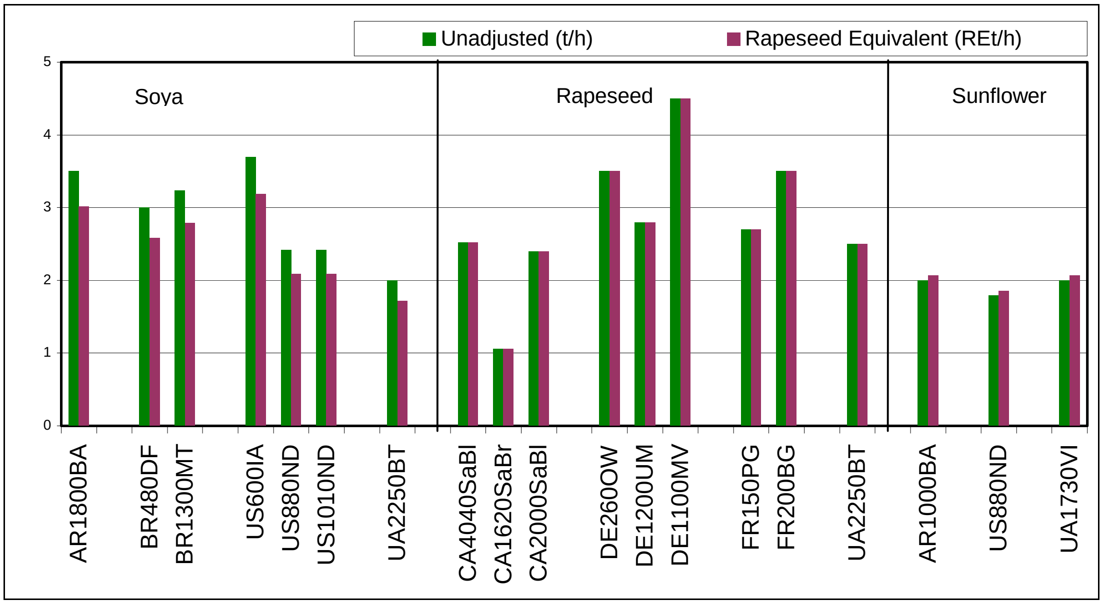

Figure 6: Unadjusted and adjusted oilseed yields (in t/h and in REt/h)

Input intensity production systems

As with wheat, three basic oilseed production systems can be identified based on relative seed, fertilizer and plant protection costs per hectare: *extensive*, *moderately intensive* and *highly intensive*. However, because of the differing oilseed varieties and more varying climates included in the US and South America, assignment by country is less straightforward. Canola and sunflower production tends to be extensive in the Americas. However, rapeseed would mostly be classified as highly intensive in most European farms but not all (eg. the Ukrainian farm). Soybean production systems include moderately intensive (Ukraine and North Dakota) and highly intensive systems (Iowa, Brazil and Argentina).

Table 11: Yield, seed, fertilizer and plant protection characteristics, oilseed enterprises

Enterprise characteristic	Units	Input Intensity Group			All
		Extensive	Moderately Intensive	Highly Intensive	
Number of Farms		7	4	9	20
Average yield	t/h	2.09	2.55	3.01	2.60
Average seed, fertilizer and plant protection cost	US$/h	126.67	170.39	340.12	231.47

Farm size

Western Canada and Argentina had some of the largest oilseed farm areas (Figure 7a), Brazil had the highest oilseed production (Figure 7b). This is due to greater specialization of the Brazilian farm in oilseed production (100% of arable acres) and somewhat higher yields.

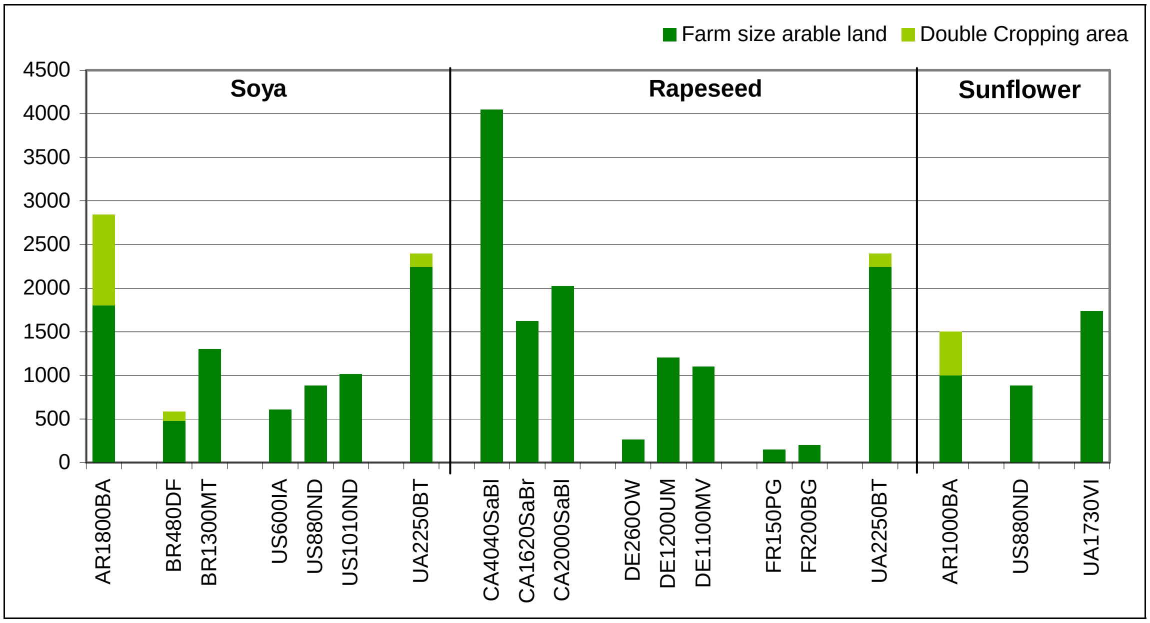

Figure 7a: Total arable area in hectares of oilseed producing farms

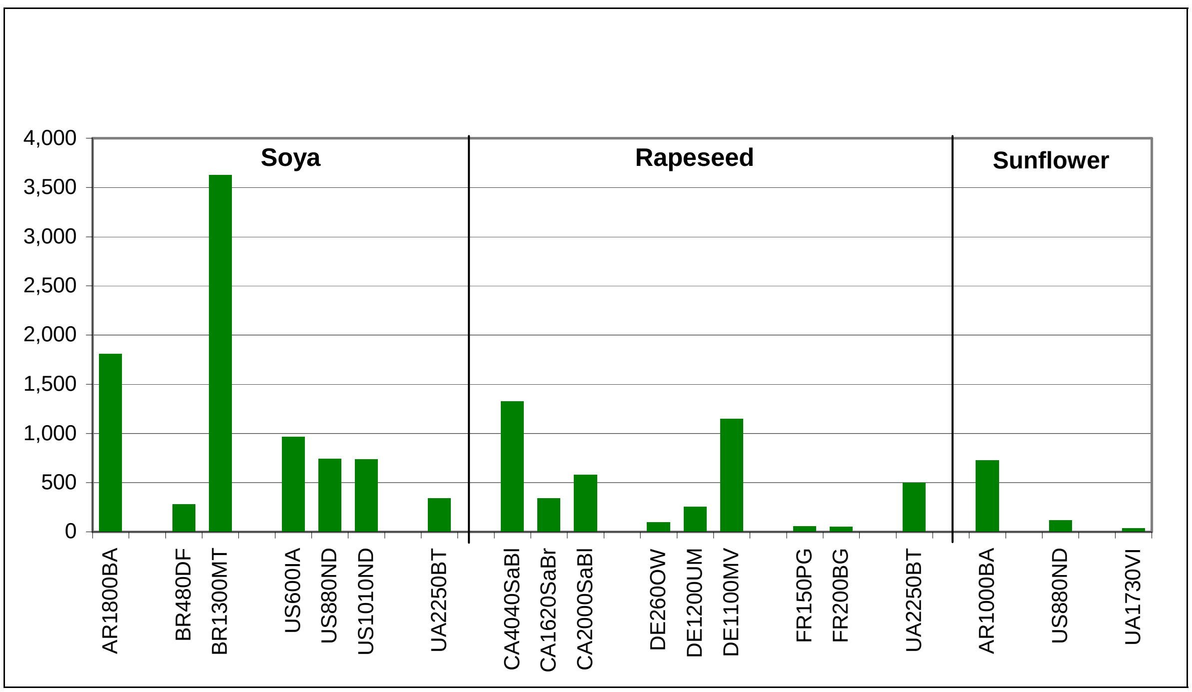

Figure 7b: Total oilseed production in tonnes of rapeseed equivalent per farm

Seed, fertilizer and plant protection (SFP)costs

SFP costs per tonne are displayed in figure 8 and by group intensiveness in Table 12. In a similar fashion to wheat, seed, fertilizer and plant protection costs per hectare vary considerably among the various countries, but unlike wheat, per tonne SFP costs still vary considerably.

- The per tonne SFP costs of the extensive and moderately intensive groups are almost the same at approximately $67/tonne.
- The per tonne SFP costs of the intensive group is almost 70% higher at $113 per tonne.

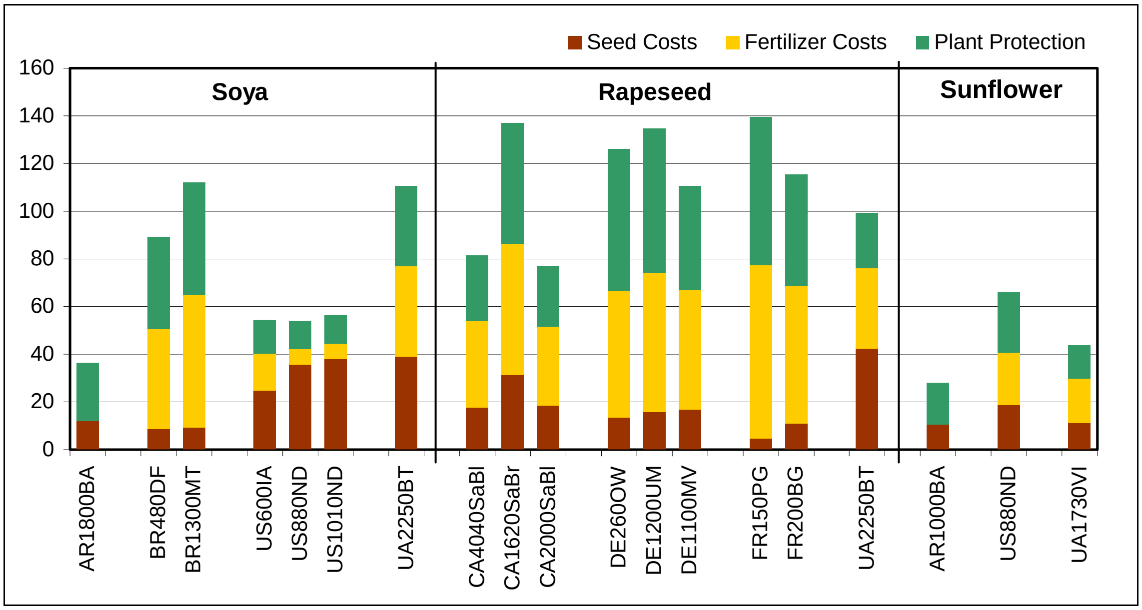

Figure 8: Seed, fertilizer, and plant protection related costs in oilseed production (US$/REt)

Machinery, building, labour and insurance costs

As with wheat, the greatest cost differences per tonne are associated with machinery, building, labour and insurance costs (figure 9). However, unlike wheat, they represent about the same proportion of total cost.

Differences are largely due to the number of passes, fuel prices and wage rates.

- Argentina featured the lowest cost per tonne at US$23/REt (Figure 9).
- The moderately intensive producing countries had the lowest machinery, building, labour and insurance costs cost, averaging about US$60/REt or about 39% of total costs (Table 12). Low costs per tonne are a combination of low labour costs and relatively high yields.
- The extensive producing countries had the second lowest cost per tonne, averaging about US$81/REt or about 38% of total costs (Table 12). These areas incorporate 4 to 6 machinery passes including cultivating/seeding, spraying, windrowing (Canada) and harvesting.
- The intensive producing countries of the EU-15 incorporate 16 to 20 machinery operations in 12 to 15, passes generating a cost of approximately US$120/REt or 39% of total cost.

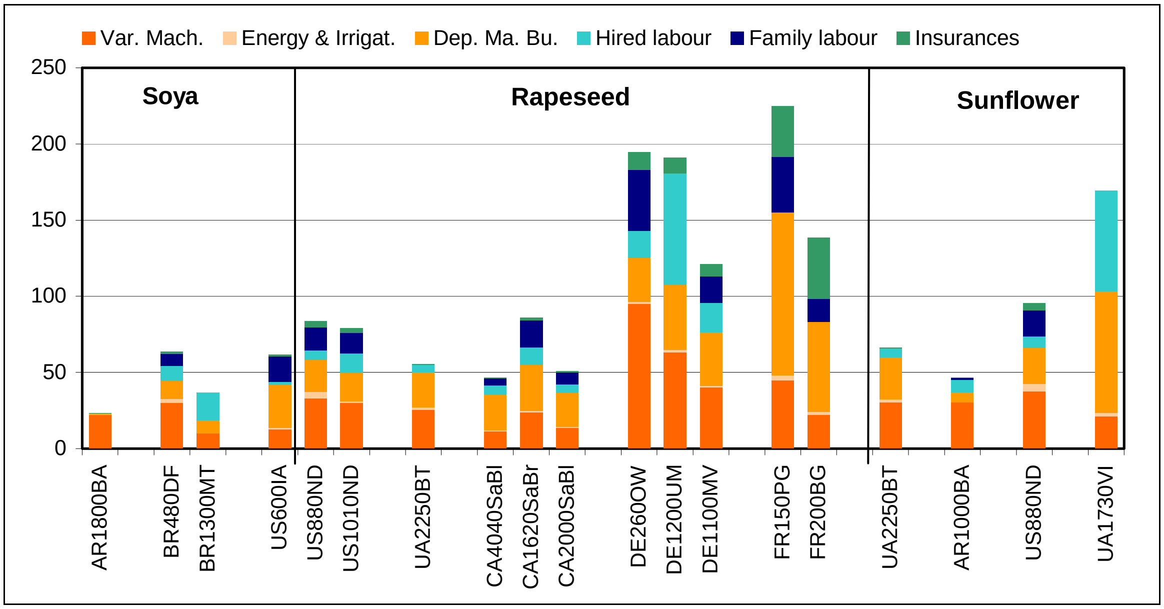

Figure 9: Machinery, labour and insurance costs in oilseed production (US$ per REt)

Table12: Group average cost of oilseed production by country group and cost category

Item	Cost Group					
	Extensive		Moderately Intensive		Highly Intensive	
Number of Farms	7		4		9	
Cost Category	(US$/ REt)	% of Total Cost	(US$/ REt)	% of Total Cost	(US$/ REt)	% of Total Cost
Seed, Fertilizer & Protection	66.30	30.6%	67.37	36.7%	112.79	36.7%
Machine, Building, Labour & Insurance	81.42	37.6%	59.55	39.1%	120.11	39.1%
Total Cost	216.77	100.0%	215.25	100.0%	307.33	100.0%

Total farm cost efficiency

Total farm cost efficiency is assessed based on total oilseed costs including opportunity costs, at the farmgate and are displayed in figure 10 and Table 13. Cost structure is divided into cash costs, depreciation and opportunity costs.

Note that comparing oilseed costs of production at the farmgate poses several problems in that a number of farms are located in areas far from an ocean port and therefore, potential global competitiveness can not be based on these numbers alone. Costs must be adjusted to a common destination.

The results are the following.

- The least-cost producers are located in Argentina, Canada, the Ukraine and US (North Dakota) but these countries are also the farthest from an ocean port position.
- The average total cost of the extensive group was approximately US$235/REt and the average total cost of the very intensive group was approximately US$274/REt.

Total cost and revenue cost structure

Total cost and revenue cost structure is compared in Figure 10 and by profitability groups in Table 13. Revenue structure is divided into market and government program revenue. Note that local farmgate prices reflect differences in quality, transportation and handling and time of harvest. There are significant differences in revenue per unit of output. Germany receives the highest commodity price (301.32 US$/REt) whereas Ukrainian farmers receive just 141.28 US$/REt.

Profitability

In calculating economic profitability, all factors are valued at their opportunity cost and when calculations are based on the enterprise level. This approach suffers from a number of fixed cost allocation and valuation problems outlined in the *Limitations* section above. Accordingly, these results must be used with great care.

Clearly, direct government payments have a major impact on oilseed profitability.

- Without direct government payments, only 8 of the 20 oilseed enterprises generated economic profits.
- When direct government payments are included, 13 of the 20 oilseed enterprises and almost all exporting countries generated profits.

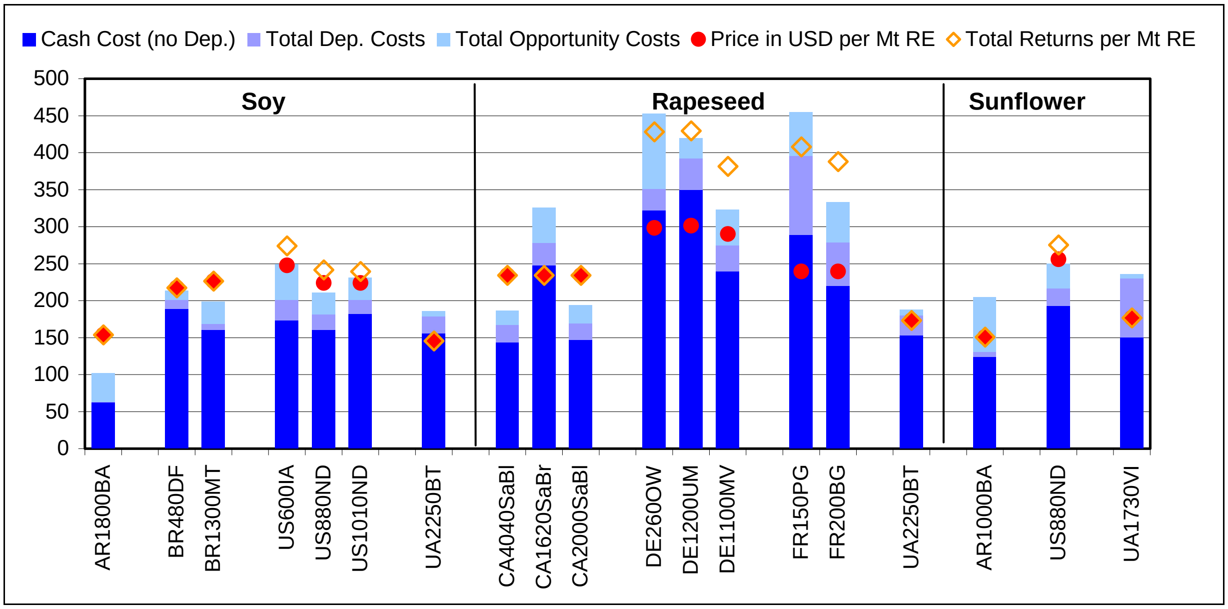

Figure 10: Total cost and returns in oilseed production (US$/REt)

Table 13: Oilseed enterprise profitability (US$ per tonne rapeseed equivalent)

Direct Government Payments	Profitable		Unprofitable		All	
	No	Ave (US$/ REt)	No	Ave (US$/ REt)	No	Ave (US$/ REt)
Excluded	8	24.22	12	-73.71	20	-34.54
Included	13	29.72	7	-47.43	20	2.72

Oilseed Conclusions

As with wheat, caution must be exercised in applying these results to all farms. Nevertheless, several conclusions can be drawn as to commercial exporting farms.

- First, there is considerably more variability in seed, fertilizer and plant (SFP) costs per tonne. While there are a number of farms with similar per tonne costs in rapeseed production (Germany, France and one Canadian farm) and soybeans or soya (one Brazilian farm), there is considerable difference in other farms.
- Second, machinery, building, labour and insurance costs per tonne by the intensive countries are even more variable than SFP costs.
    - This is particularly true in comparing extensive and highly intensive groups.
    - Differences carry over to the various oilseed types. Rapeseed tends to be higher cost per tonne.

Summary and Conclusions

In brief summary, 2005 enterprise data were collected for a total of 70 wheat and oilseed enterprises from 27 different farms located in 12 different countries. In order to make comparisons more meaningful, results are reported for only the major exporting countries.

- There are clear differences in farmgate costs, however, until costs can be adjusted to a common importing destination, direct cost comparisons must be used with care.
    - The least-cost producers at the farmgate are located in Argentina, Brazil, Canada and the Ukraine but these countries are also the farthest from an ocean port position.

- The intensive use of seed, fertilizer and plant (SFP) inputs per hectare by EU15 producers does not translate in exceptionally higher costs per tonne of wheat and even less so when expressed as a proportion of total costs.
    - This contradicts the popular myth held by many producers in Canada and the United States that EU15 producers are high SFP cost producers.

- In terms of oilseed production, there is considerably more variability in seed, fertilizer and plant costs per tonne of oilseed. While there are a number of farms with similar per tonne costs in rapeseed production (Germany, France and one Canadian farm) and soybeans or soya (one Brazilian farm), there are considerable differences in other farms.
    - The underlying reasons for these differences are not clear and will be further investigated in future research.

- Machinery, building, labour and insurance costs per tonne by the intensive countries are even more variable than SFP costs. Machinery, building, labour and insurance costs per tonne of wheat by the intensive countries are higher in terms of both per tonne (almost twice as high) and as a percent of total costs (almost 50% higher). This may make them more vulnerable to higher energy prices in the form of high fuel consumption and indirectly through higher machine prices.

- In terms of profitability, direct government payments have a major impact on wheat and oilseed profitability.
    - Without direct government payments, 5 of the 24 wheat enterprises and 8 of the 20 oilseed enterprises generated economic profit.
    - With direct government payments, 13 of the 25 wheat enterprises and 13 of the 20 oilseed enterprises generated economic profits.

- Finally, there are a number of limitations.
    - Cost data are based on relatively few commercial farms and the allocation of joint or fixed costs is particularly problematic. Hence, enterprise profitability comparisons should be used with care as profitability is best measured over the whole farm.
    - The data represent 2005 prices and exchange rates; both have changed considerably since then. It is likely that US farms have become much more competitive and the remaining farms have become less so.

Future Plans

In addition to updating existing farms, additional farms are being added to increase the covered farming area as well as differing sizes and management levels. Particular attention is being devoted towards defining management typologies and constructing a standardized procedure for each type. Of particular interest to exporting countries are the “efficient” farms that represent the most competitive farms of the future.

In addition, efforts are being made to refine and improve cost our methodology and data collection procedures. Areas of concern include valuation and allocation of rotational effects, fixed or joint cost allocation and labour valuation.

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