

**Dual Market Considerations:**  
***Quality Regulations and Mechanisms in the US  
and Differences to Canada***

To: US of Saskatchewan seminar  
*Operating Successfully in a New Grain Marketing Environment*

Saskatoon  
Dec 12 2011

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# Topics

- Overview of
  - Grades and grading
  - US system
- Comparison—high-level between US and Canada
- Outlook

## Organization and Role

- Permit
  - buying and selling by description rather than inspection
  - commingling of grain into a few categories with uniform characteristics
- Describe grain characteristics of value for marketing and processing purposes
- Provide tools for market to generate incentives for quality improvement

## Contract Terms

- Contract terms are mechanisms to assure quality conformance
- Prerequisite for contracting to work efficiently
  - Measurement
    - (Objective, Low cost, accurate and repeatable)
  - If not contracts for transactions are less effective

# Grades, Standards and Informational Items

# Role of Minimum Standards

- Reduce transaction costs--costs, including risks, or consummating transactions
- Asymmetric information (Lemons), etc.
  - Favors the seller
  - As average quality declines in a market, better quality products are driven out of the market.
  - The prospective reduction in average quality provides justifications for producers of higher quality products to somehow differentiate their product from other lower quality products or work to impose minimum standards.

# US System: Critical Features

- **Grades:**
  - Classes and sub-classes
  - Factors and factor differentials that increase at increasing rate across grades
  - Non-Grade Factors (treated separately as contract terms): Dockage, Moisture, Protein
  - Informational items (treated separately as contract terms): Vomitoxin, Falling Number, Absorption, Sedimentation, Other
- **Application of grades**
  - Official only required at point export (on inter-firm transactions)
  - Official used elsewhere, selectively where economical
- **Contracts:** Used extensively w/specifications of grade/non-grade factors, and premiums/discounts for deviations therefrom.
- **Variety regulations**
  - No national requirements other than 'intended class'
  - Individual firms/organizations have their own variety release criteria

Grades and grade requirements for all classes of wheat, except Mixed wheat.

Grade	Minimum limits of pounds		Maximum limits of percent						
	Test weight per bushel		Defects				Wheat of other classes		
	Hard Red Spring Wheat or White Club wheat	All other classes and subclasses	Damaged kernels	Foreign Material	Shrunken and broken kernels	Total	Contrasting classes	Total	
			Heat Damaged kernels	Total					
U.S. No. 1	58.0	60.0	0.2	2.0	0.4	3.0	3.0	1.0	3.0
U.S. No. 2	57.0	58.0	0.2	4.0	0.7	5.0	5.0	2.0	5.0
U.S. No. 3	55.0	56.0	0.5	7.0	1.3	8.0	8.0	3.0	10.0
U.S. No. 4	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
U.S. No. 5	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0

## Wheat, Canada Western Red Spring (CWRS)

Column	1			Foreign Material							9 (1+2+4+6+7)
	Broken grain through #5 buckwheat sieve			2	3	4	5 (2+3+4)	6	7	8 (2+6+7)	
Grade Name	Ex Primary %	Ex Terminal %	Ex Transfer %	Small seeds %	Attrition %	Roughage %	Total small seeds, attrition and roughage %	Large seeds %	Wild oats %	Total small seeds, large seeds and wild oats %	Total small seeds, large seeds, wild oats, roughage and broken grain through #5 buckwheat sieve %
No. 1 CWRS	0.3	<u>0.35</u>	0.5	0.05	0.10	0.05	0.1	0.2	0.05	0.2	0.5
No. 2 CWRS	0.3	<u>0.35</u>	0.5	0.05	0.10	0.05	0.1	0.2	0.05	0.2	0.5
No. 3 CWRS	0.3	<u>0.35</u>	0.5	0.05	0.10	0.05	0.1	0.2	0.05	0.2	0.5
No. 4 CWRS	0.3	<u>0.35</u>	0.5	0.05	0.10	0.05	0.1	0.2	0.05	0.2	0.5
CW Feed	0.5	0.5	0.5	0.05	0.10	0.1	0.1	0.5	0.1	0.5	0.5

Column	Foreign Material					
	10	11	12	13	14	15 (2+3+4+6+7 +10+11+12+13+14)
Grade name	Stones %	Mineral matter including stones %	Ergot %	Sclerotinia %	Other cereal grains and other matter %	Total foreign material %
No. 1 CWRS	0.03	0.06	0.01	0.01	0.4	0.4
No. 2 CWRS	0.03	0.10	0.02	0.02	<u>0.75</u>	<u>0.75</u>
No. 3 CWRS	0.05	0.10	0.04	0.04	<u>1.25</u>	<u>1.25</u>
No. 4 CWRS	0.05	0.10	0.04	0.04	2.4	2.4
CW Feed	0.1	<u>0.25</u>	0.1	0.1	5	5

\* Columns which represent a subtotal of other columns show the columns to be added in parenthesis  
 The area inside dashed lines refers to factors which are assessed in determining commercial cleanliness.  
 Total foreign material does not include broken wheat passing through the #5 buckwheat sieve

**Wheat, Canada Western Red Spring (CWRS) continued**

Grade name	Minimum test weight kg/hl (g/0.5 L)	Wheats of other classes or varieties		Minimum hard vitreous kernels %	Sprouted		Heated		Shrunken and broken (**)		
		Contrasting classes %	Total %		Severely sprouted %	Total %	Binburnt, severely mildewed, rotted, mouldy %	Total %	Shrunken %	Broken %	Total %
No. 1 CWRS	79 (385)	0.5	<u>1.5</u>	65	0.10	0.5	0.005	0.05	4	5	7
No. 2 CWRS	<u>77.5</u> (376)	1.5	3	No minimum	0.20	1.0	0.020	0.4	4	6	8
No. 3 CWRS	<u>76.5</u> (373)	<u>2.5</u>	5	No minimum	0.30	3.0	0.030	1.0	4	7	9
No. 4 CWRS	75 (365)	<u>2.5</u>	5	No minimum	0.50	5	0.030	1.0	4	7	9
CW Feed	73 (355)	No limit—but not more than 10% amber durum and/or General Purpose		No minimum	No limit	No limit	<u>2.5</u>	<u>2.5</u>	4	13	15

(\*\*) See truncation rule for "Shrunken and Broken"

# US: Grades and Classification

- 1 Categorizes wheat by season and color
- 2 Does not use explicitly use variety as a means of classification
- 3 Class and subclass definitions and measurable wheat characteristics, such as protein and falling number used as informational items
- 5 Revamping of grading system has been considered often to meet the needs of end-users seeking high quality wheat
- 6 FGIS: Mandatory Inspection for exports only

# Hierarchy of Classification in U.S.

## Class

Durum  
Hard Red  
Spring  
Hard Red  
Winter  
Soft Red Winter  
Hard White  
Soft White  
Mixed Wheat

## Subclass

Durum  
    Hard Amber  
    Amber  
    Durum  
Hard Red Spring  
    Dark Northern  
Spring  
    Northern Spring  
Red Spring

## Grade Factors

Test Weight  
Heat Damaged Kernels  
Damaged Kernels Total  
Foreign Material  
Shrunken & Broken  
Kernels  
Total Defects  
Contrasting Classes  
Wheat of Other Classes

## Non-Grade Factors

Dockage  
Moisture  
Protein  
Informational Items  
Vomitoxin  
Falling Number  
Absorption  
Sedimentation  
Other

**Hard Red Spring Wheat  
Breeding Quality Target Values**

		<b>Extra</b>	<b>Traditional</b>
	<b><u>Quality Parameter</u></b>	<b><u>Strong</u></b>	<b><u>Strong</u></b>
<b>Wheat</b>	Test Weight (lb/bu) (Grading Factor)	60	60
	Protein (12% m.b.)	14.5	14.5
	Ash (14% m.b.)	<1.65	<1.65
	Vitreousness (% Dark Hard & Vitreous, DHV)	80	80
	1000 kernel weight (g)	>31	>31
	Falling Number (seconds)	400	400
	Wheat Hardness (SKCS)	80	80
	Wheat Hardness (NIR)	70	70
<b>Milling</b>	Flour Extraction		
	Buhler Lab Mill (% , @ 0.48 ash)	70	70
	Quadrumat Senior (% , @ 0.48 ash)	70	70
	Protein Loss (%)	<1.0	<1.0
<b>Flour</b>	Ash (14% m.b.)	0.48	0.48
	Color (L* value)	90	90
	Wet Gluten (% , 14% m.b. @ 13.5% protein)	36	36
<b>Farinograph</b>	Absorption (%)	64	64
<b>(50 g bowl)</b>	Peak Time (Minutes)	15	10
	Stability (Minutes)	25	15
	Classification (1=weak, 8=strong) <sup>1</sup>	8	6.5
<b>Extensograph</b>	Resistance to Extension (BU)	800	600
45 min. stretch	Extensibility (cm)	20	22
<b>Mixograph</b>	Classification (1=weak, 8=strong) <sup>1</sup>	8	6
<b>Bread<sup>2</sup></b>	Loaf Volume (cc)	1050	1050
	Grain & Texture (1=poor -10 excellent) <sup>1</sup>	8.5	8.5

# Comparison across major exporters

Variety: All major exporting countries except for U.S. use some varietal aspect in determining class and/or quality

Feed wheat is considered a separate class in all major exporting countries except the U.S.; and defined in government support programs

Enforcement of grade/class are done in Canada and Australia, but not formally in the U.S. (except at point of export)

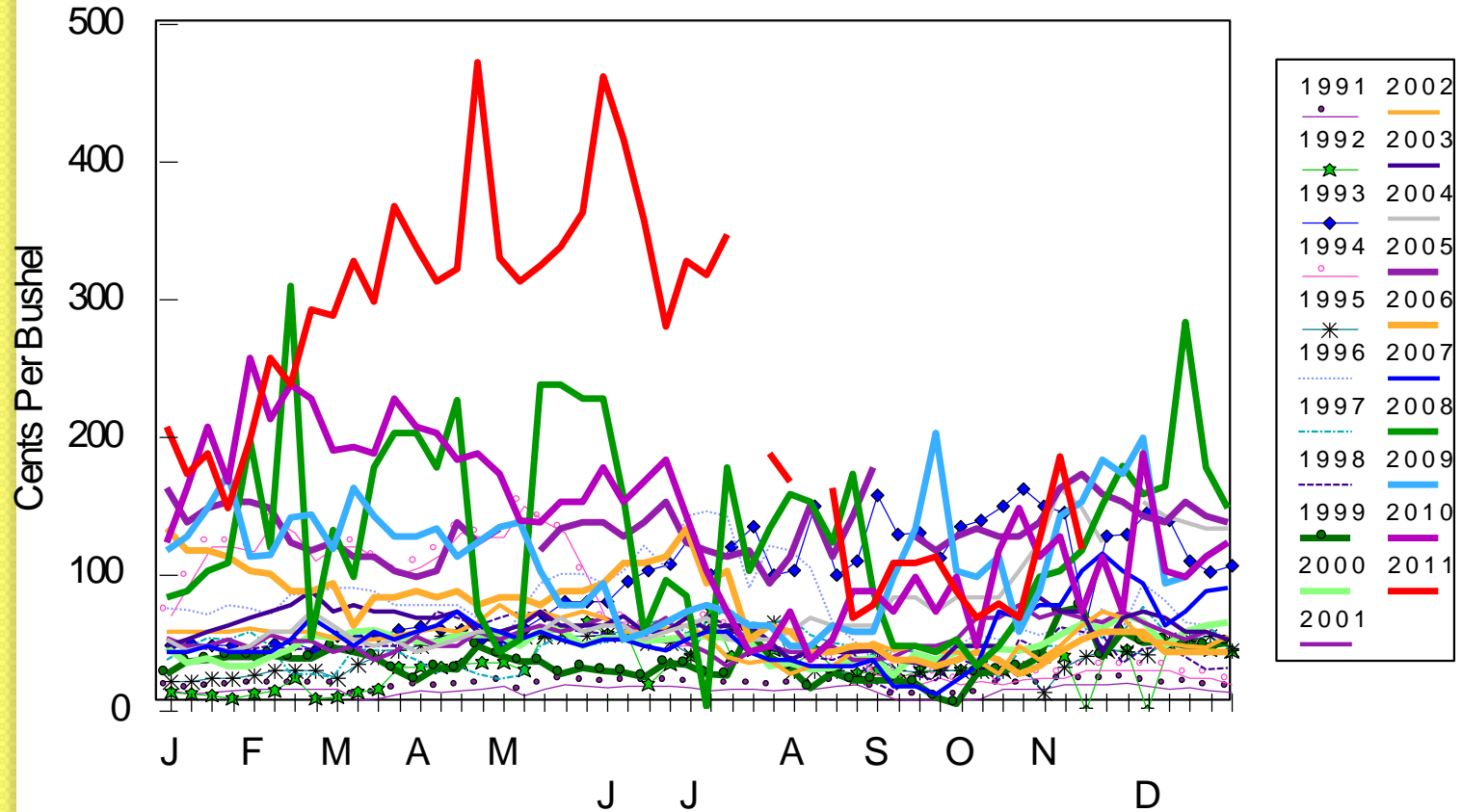
Dockage and protein: US informational items; Canada are grade determining

Increase in number of classifications in **all** exporting countries

# US: Extensive use of Premiums/Discounts

- Important points
  - Highly random
  - Determined by s/d for characteristics
  - Normal contracts are for ‘prem/discounts to apply at time of delivery’
    - Hence, growers bear the full brunt of risk related to premiums/discounts in the case of wheat
    - Other crops have adopted varying forms of risk-sharing w.r.t. post-harvest premiums and discounts

# Mpls 14% Wheat Basis Relative to Nearby Mpls Futures



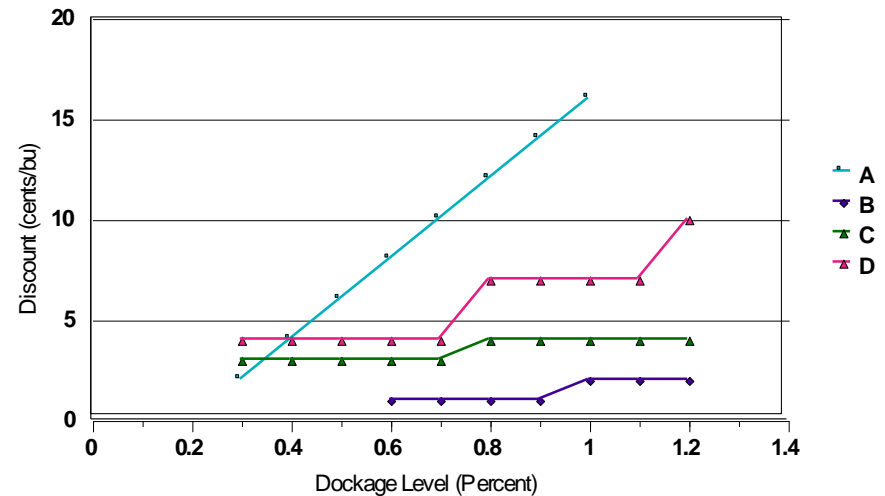
# Survey of North Dakota / Montana Country Elevators on Dockage discounts

## Buyers - Export

- 2 c/b for each .1% over .2%
- 1 c/b for each .5% over .5%
- 3 c/b for dockage .3% to .7%, 4 c/b over .7%
- 3 c/b for each 1% over 1%
- 4 c/b from .3% to .7%, 3c/b for each .5% over .7%

## Buyers - Domestic

- 1 c/b from 1% to 1.3%, 3 c/b from 1.4% to 1.6%
- 4 c/b from .4% to 1%



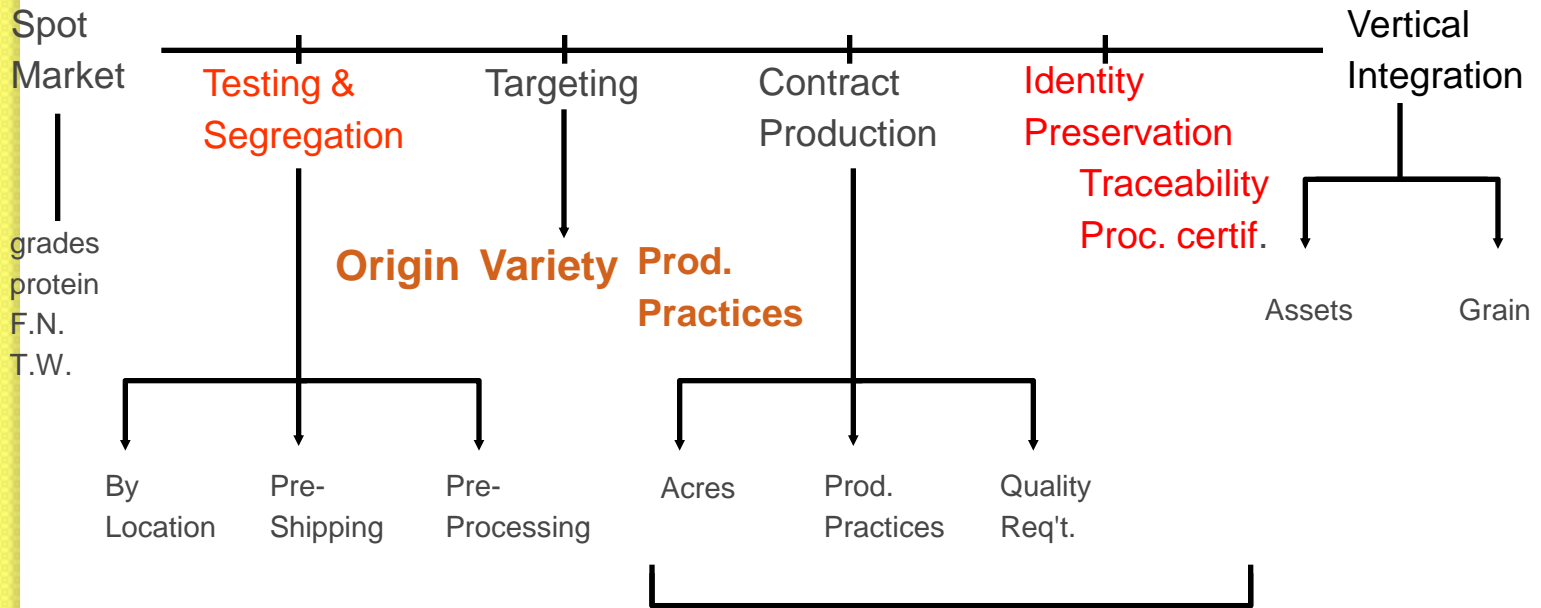


# Durum discounts: Sept 2011

## Durum Bids

	SO	ND	JFM	Terminal Superior		SEP	OND
CHS Milling						15 day window	
88 HVAC (PER CAR)	1275	1350	1400	#1HAD (PER CAR)	300 FN	1150	1150
85 HVAC (PER CAR)	1225	1300	1350	#2HAD (PER CAR)	Any FN	1075	1075
60/13/330/1.0dmg/1.0 don/13.5mst/1.0dock/avgs market scales per car				35 HVAC #3 grade	Any FN	950	950
13 protein							
dockage discount: -.03 each .2 above 1.0%							
Prices are delivered Chicago				We Do Not Currently Have A Shuttle Bid			
				Divd CHGO 1.0dock/13.5mst/60#/1.0FM/1.0CCL/2.0vomi 25/26cars AS-IS/250 FN			
				<u>Terminal Dul Trucks</u>			
				#1 HAD 80hvac 12.5pro			
				#2 HAD 80hvac 12.5pro			
				#3 HAD			
				#4 HAD			
				SG Durum 60hvac 25td 56# no sour or musty			
				Divd Dul 1.0dock/13.5mst/60#/1.0FM/1.0CCL/2.0vomi AS-IS			

# Segregation, IP and Traceability Spectrum of Procurement Strategies



# Segregation/Testing in Practice I

- Is component of maturing market system, in small grains
- Elevators in ND have always made extensive segregations
- Current: 19 segregations for wheat maintained
  - Grades
  - Protein
  - Dockage
  - T. Wt
  - Falling Number
  - Vomitoxin
  - Others
- KEY: Segregation is routine part of grain marketing in small grains

# Segregation in Practice

- Segregation arises due to heterogeneity in
  - Consumer/buyer demand
  - Crop characteristics
    - Random, or genetic
- Segregation is a process of de-commoditization
  - Desired by market participants
  - Emerges in response to buyer demands
- Segregation is used very extensively in practice
  - Buyers are finding ways to make purchases of non-GM even though GM may be the predominant crop
  - Numerous examples in US on corn and soybeans
  - Brazil routinely serves both market segments

# IP/Segregation are not synonymous

- IP

- ƒ Variety specific
- ƒ Certified seed
- ƒ Audits conducted using varying mechanisms
- ƒ Paper trail (sometimes)
- ƒ Identity if preserved
- ƒ Tests may/may not be component of system
- ƒ Desired processes are declared

- Segregation

- ƒ Grain is segregated based on varying forms of information:
  - tests
  - variety declaration
  - hunches!
- ƒ Maintained throughout system in response to incentives
- ƒ Tests assure integrity of segregations

- GM Averse buyers : want tests/segregations and traceability, not IP

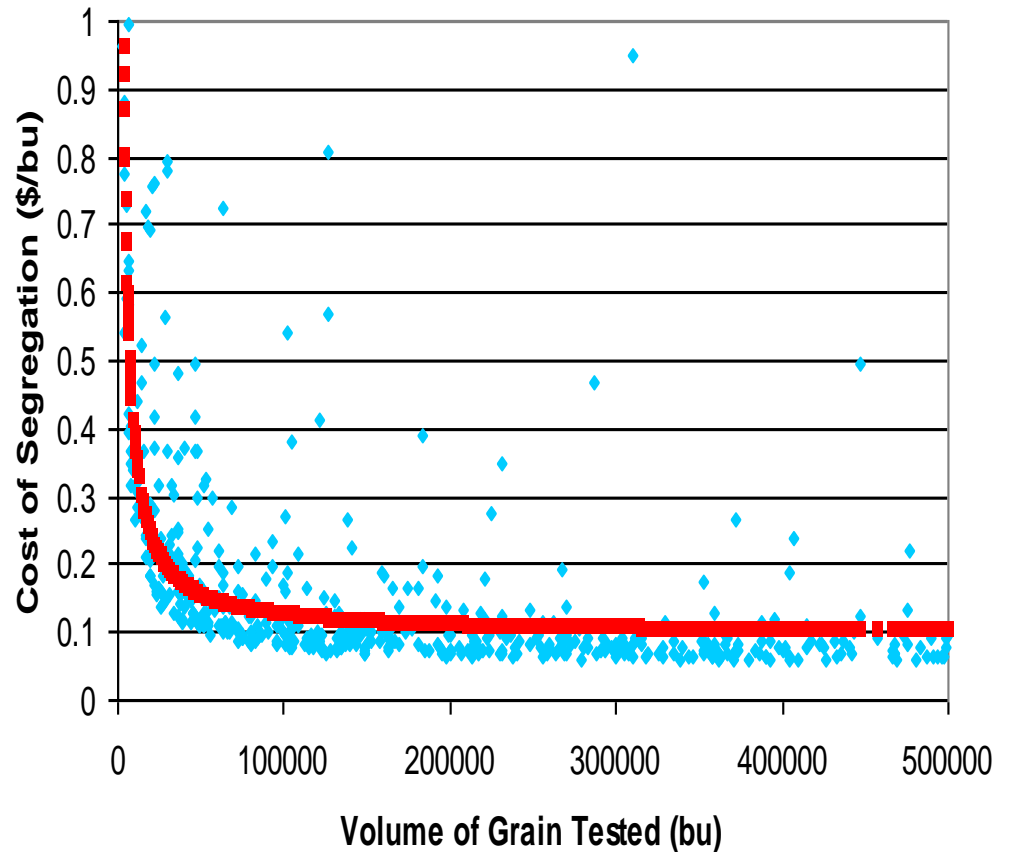
# Segregation costs and practices in US Midwest Elevators

	<b>% Grain Segregated</b>	<b>Estimated Cost of Segregation (\$/bu)</b>	<b>Cost of Modification (\$)</b>
<b>Mean</b>	<b>36%</b>	<b>0.07</b>	<b>195,713</b>
<b>St Dev</b>	35%	0.08	428,377
<b>Min</b>	0%	0.01	0
<b>Max</b>	100%	0.3	1.5M

- **Cost of Modification**
  - Major Constraint to Effective Segregation
  - Smaller for Large Elevators

# Segregation Costs:

	% Grain Segregated	Estimated Cost of Segregation (\$/bu)	Cost of Modification (\$)
<b>Mean</b>	<b>36%</b>	<b>0.07</b>	<b>195,713</b>
<b>St Dev</b>	35%	0.08	428,377
<b>Min</b>	0%	0.01	0
<b>Max</b>	100%	0.3	1.5M



◆ Cost of segregation ■ Estimated value

# Comparison— *high-level between US and Canada*

- Minor-subtle, though important differences
- Differences
  - Tradition, based in part on the marketing system of each country
  - Pressure to become more harmonized under dual market

# Canada: Grading and Classification

- Varieties not approved in Canada are designated to the lowest grade, usually feed wheat
- CGC recommends grades to be implemented
- Large number of classes/grades of wheat that are further divided into segments using protein levels
- Two sets of grade standards are maintained (Primary and Export)
- Primary standards are less limiting and utilized for domestic transactions
- Export standards are maintained for grains shipped to offshore destinations

# Hierarchy of Classification in Canada

## Class

Canada Western Red Spring  
Canada Western Hard White Spring  
Canada Western Amber Durum  
Canada Western Red Winter  
Canada Western Extra Strong  
Canada Western Soft White Spring  
Canada Prairie Spring Red  
Canada Prairie Spring White  
Canada Western General Purpose  
Canada Western Feed  
Canada Eastern Red  
Canada Eastern Red Spring  
Canada Eastern Hard Red Winter  
Canada Eastern Soft Red Winter  
Canada Eastern Amber Durum  
Canada Eastern Hard White Winter  
Canada Eastern White Winter  
Canada Eastern Soft White Spring  
Canada Eastern Hard White Spring  
Canada Eastern Feed

## Grade Factors

Variety within class  
Test Weight  
Vitreous Kernels  
Degree of Soundness  
Foreign Material  
    Other than grains  
    Total  
Contrasting Classes  
Wheat of Other  
Classes

## Non-Grade Factors

Dockage  
Moisture  
Protein

## Informational Items

Vomitoxin  
Falling Number  
Absorption  
Sedimentation  
Other

# Varieties Approved for CWRS

**Varieties of Wheat Designated as Class Wheat (Canadian Western Red Spring)  
CWRS, Amended August 9, 2011**

AC Abbey	CDC Bounty	Infinity	Somerset
AC Barrie	CDC Go	Journey	Stettler
AC Cadillac	CDC Imagine	Kane	Superb
AC Cora	CDC Kernen	Katepwa	Thatcher
AC Domain	CDC Makwa	Laura	Unity
AC Eatonia	CDC Osler	Leader	Vesper
AC Elsa	CDC Stanley	Lillian	Waskada
AC Intrepid	CDC Teal	Lovitt	WR859 CL
AC Majestic	CDC Thrive	McKenzie	5500HR
AC Michael	CDC Utmost	Muchmore	5600HR
AC Minto	Columbus	Neepawa	5601HR
AC Splendor	Conway	Park	5602HR
Alikat	Fieldstar	Pasqua	5400IP**
Alvena	Garnet*	Peace	5603HR
Carberry	Glenn	Pembina	5604HR CL
Cardale	Goodeve	Prodigy	
CDC Abound	Harvest	Roblin	
CDC Alsask	Helios	Shaw	

Source: Canadian Grain Commission, Orders of Canadian Grain Commission,  
Variety Designation Lists

<http://www.grainscanada.gc.ca/legislation-legislation/orders-arretes/ocgcm-maccg-eng.htm>

# Summary of Differences

Feature	US	Canada
Grade Factors	Least factor approach w/increasing differences among factors for lower grades	Least factor approach; but, some factors are tight throughout grades
Non-grade factors	Extensive use of non-grade determining factors: protein, FN, dockage, Stability, ....	Lesser-use of non-grade factors
Price differences among factors	Extensively used for all grade and non-grade factors	
Dockage	Non-grade factor and subject to contract limits and prem/disc.	Commercially cleaned—is applied more universally
Vomitoxin	Non-grade factor, s.t. FDA regulations. Limits on purchase specifications, and s.t. discounts	Not listed specifically, but, grades do include 'percent sprouted,' 'fusarium damage, and other damaged kernels
Falling numbers	Non-grade factor, s.t. purchase specifications and discounts	
Variety	Not officially (gov't) regulated, but, each release agency has own-standards/targets	Variety must be approved to be marketed for specific grades
Application of grades	Official grades/grading only required at export (certificate final)	Grading/grades req'd at primary and export

## MGEX: Specifications for futures delivery and 'milling quality wheat' in the cash market

Factor	Futures Specification (Rule 803)	Milling quality wheat
Grade	No. 2 or better NS	No. 1 DNS
Protein	13.5, or 13 @ 3c/b discount	Range: 13-15
Test Wt.	58 lb, or 60 w/2c/b prem	58 lb or better
Moisture	<13.5%	<13.5%
Dockage	< 1 ½ %	< 1 ½ %
Damage	Specified as grade factor limit: <4%	< 1.5 %
Falling Number	Not included	>300
Vomitoxin	Not explicit, but, <i>Rule 2040</i> : Wheat declared unfit for human consumption under FDA is not deliverable	Max 2 ppm
Canada delivery	Changed, to be allowed May13 forward	

# Implications of Delivery Specifications

- CFTC: The futures should reflect the prevailing specifications in the dominant underlying cash market!
- Excluding important (value and volatility) factors from delivery specifications
  - Increases potential volume of wheat deliverable, thereby minimizing manipulation during delivery, and liquidity
  - Basis risk increases as the value and variability of non-grade factors escalate in importance
  - Precludes efficient hedging alternatives for these sources of risks (for both buyers and sellers)

# ICE Proposed CWRS (HRS) contract: Shipping Certificate

DRAFT – August 16, 2011

## ICE SPRING WHEAT FUTURES

<b>Pricing Basis</b>	Free on Board points in the Par Region
<b>Currency</b>	Canadian dollars
<b>Delivery Months</b>	March, May, July, October, December
<b>Deliverable Specifications</b>	<p>Contract deliverable grades shall be based on primary elevator grade standards as established by the Canadian Grain Commission (CGC).</p> <p>(1) Non-commercially clean Canadian wheat with a minimum of 13.0% protein, a maximum of 2.0 ppm vomitoxin, and a maximum dockage of 1% (dockage deductible to CGC standards), all other specifications to meet No. 1 or No. 2 Canada Western Red Spring Wheat at par; or</p> <p>(2) Non-commercially clean Canadian wheat with a minimum of 12.5% protein and less than 13.0% protein, a maximum 2.0 ppm vomitoxin, and a maximum dockage of 1% (dockage deductible to CGC standards), all other specifications to meet No. 1 or No. 2 Canada Western Red Spring Wheat at a discount of \$5.00 per net tonne.</p>
<b>Delivery Regions</b>	<p><b>Par</b> - Par area in Eastern Saskatchewan, East of Saskatoon</p> <p><b>Southern Manitoba</b> - Locations in Manitoba, south of Dauphin, at a \$2.00/t premium</p> <p><b>Northwestern Manitoba</b> - Locations in the Dauphin-Roblin-Swan River area of Manitoba at a \$2.00/tonne discount</p> <p><b>Western Saskatchewan</b> - Locations in western Saskatchewan at a \$4.00/tonne premium</p> <p><b>Alberta</b> - Locations in central and southern Alberta at a \$8.00/tonne premium</p> <p><b>Peace River</b> - Locations in the Peace River region of Alberta and B.C. at a \$4.00/tonne premium</p>
<b>Storage Rate</b>	\$0.12 per tonne per day
<b>Contract Size</b>	1 contract = 100 tonnes
<b>Trade Match Algorithm</b>	First-in-First-out (FIFO).
<b>First Notice Day</b>	One Trading Day prior to the first delivery day.
<b>First Delivery Day</b>	First Trading Day of the delivery month.
<b>Last Trading Day</b>	Trading Day preceding the fifteenth calendar day of the delivery month.
<b>Final Notice Day</b>	First Trading Day after the last Trading Day of the delivery contract.
<b>Min. Price Fluctuation</b>	\$0.10/tonne (\$10.00 per contract)
<b>Daily Price Limit</b>	\$20.00/tonne above or below previous settlement
<b>Reasonability Limit</b>	50 ticks
<b>Spec Limit</b>	500 contracts in delivery month

# ICE Durum Contract

**DRAFT – August 18, 2011**

## ICE DURUM WHEAT FUTURES

<b>ICE DURUM WHEAT FUTURES</b>	
<b>Pricing Basis</b>	Free on Board points in the Par Region
<b>Currency</b>	Canadian dollars
<b>Delivery Months</b>	March, May, July, October, December
<b>Deliverable Specifications</b>	<p>Contract deliverable grades shall be based on primary elevator grade standards as established by the Canadian Grain Commission (CGC).</p> <p>(1) Non-commercially clean Canadian durum wheat with a minimum of 12.5% protein, a maximum of 2.0 ppm vomitoxin, and a maximum dockage of 1% (dockage deductible to CGC standards), all other specifications to meet No. 1 Canada Western Amber Durum Wheat at par.</p> <p>(2) Non-commercially clean Canadian durum wheat with a minimum of 12.5% protein, a maximum of 2.0 ppm vomitoxin, and a maximum dockage of 1% (dockage deductible to CGC standards), all other specifications to meet No. 2 Canada Western Amber Durum Wheat at a discount of \$5.00 per net tonne.</p>
<b>Delivery Regions</b>	<p><b>Par</b> - Locations in Saskatchewan, West of Moose Jaw and south of Saskatoon, and at Saskatoon.</p> <p><b>Southeast Saskatchewan</b> - Locations in Saskatchewan, at and east of Moose Jaw, at a \$6.00 per tonne premium.</p> <p><b>Southern Alberta</b> - Locations in Alberta, from Stirling in the south, to Calgary and Lyalta in the northwest, to Medicine Hat - Dunmore in the east, at a \$6.00 per tonne discount.</p>
<b>Storage Rate</b>	\$0.12 per tonne per day
<b>Contract Size</b>	1 contract = 100 tonnes

## Comment on ICE Specifications

- 12.5 protein and no falling number spec will restrict the mills from taking delivery
- A  $\sim .13$  discount for #2s....they will most likely be delivered
- Other factors that will limit the mills include: damage and ergot.

# Outlook for quality in dual market

- Differences in systems
  - There are subtle differences which are important for past marketing regimes
- Pressure for harmonization
  - Each mechanism that adds cost to the system will become challenged under a dual market
  - Longer-term:
    - gradual process of harmonization
    - either officially or unofficially

# Future Issues Confronting both Systems

- **GM Wheat**

- Rapid development
- New-entrants
- Mechanisms for varietal registration will be challenged
- Germplasm sharing has/will become much more restrictive

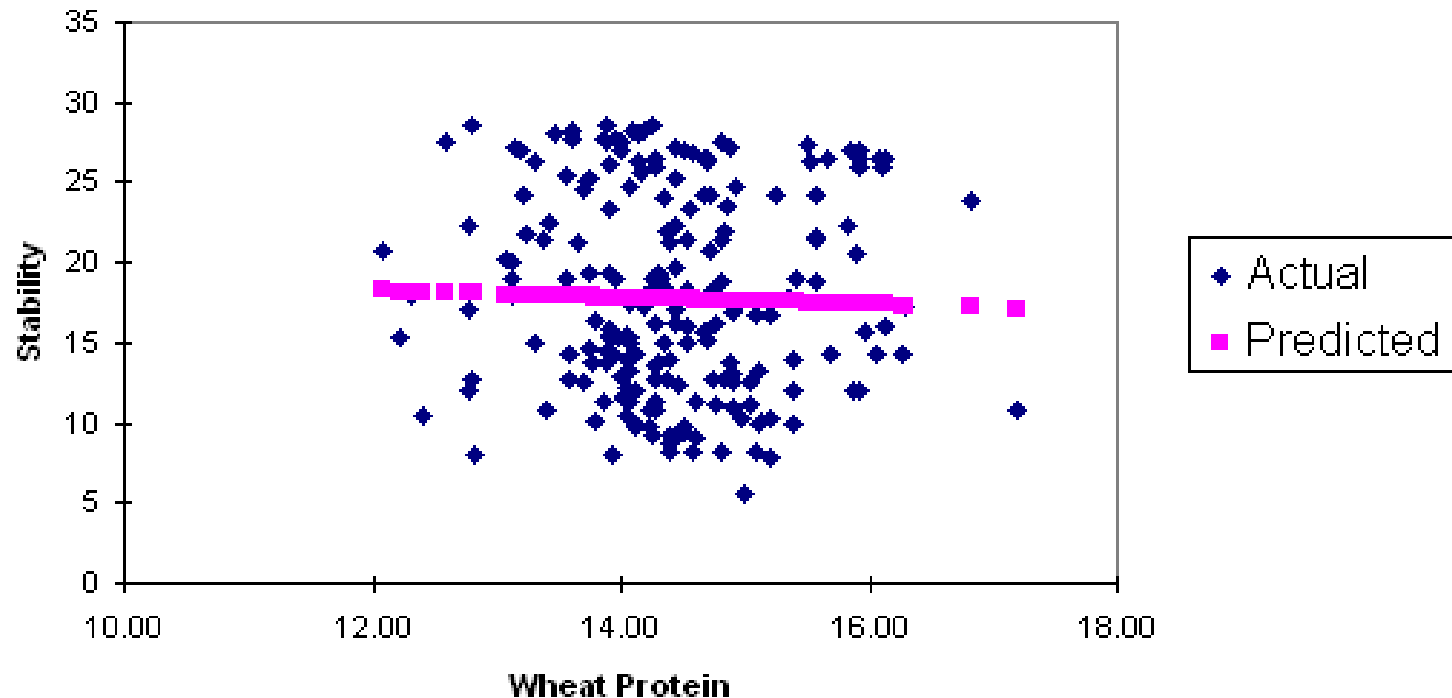
# Future Issues Confronting both Systems

- **Post-harvest discounts related to quality and risk**
  - Common practice in wheats, but, not other grains
  - Practice makes wheat more risky vs other crops
  - Other crops have created mechanisms for risk-sharing related to post-harvest quality differences
- **Consistency:**
  - Escalation in lack of consistency in end-use performance
  - Growing sophistication of buyers
  - Competition amongst sellers
  - Forms of response—for a portion of the shipments
    - Warburton's type system
    - Similar systems being adopted/developed in mbly, other N. American milling entities and off-shore buyers
      - Focus: Varieties, certified seed, and origin specifications

# Solving the Quality (Functional) Consistency Problem: The Next Challenge

- Quality consistency
  - Variability in functional performance
  - Due to: varieties, geography and climate
- Grade standards do not address these directly
- Alternatives
  - Specify grades/protein and take a risk
  - Specify locations and/or varieties
  - Specify and test for functional values
- Problem: Confronting all exporting countries

# Relationship Between Stability and Wheat Protein



# Probability of Meeting Specifications: Base Case

Characteristic	Prob. of Meeting Target Value
<b>Functional Characteristics</b>	
Absorption	.95
Peaktime	.98
Stability	.71
Loaf Volume	.90
Joint Probability	.59
<b>Flour Characteristics</b>	
Ash	.99
Flour Protein	.90
Flour Extraction	.82
Average Cost PNW Cents/Bushel	478

# Comparison Across Strategies

Strategy	Probability of Conformance (Joint)	Cost/Bushel Delivered PNW
Base Case	0.59	478
Wheat and Protein 13%	0.25	469
Wheat and Protein 14%	0.53	477
Wheat and Protein 15%	0.62	485
Location	0.67	463
Variety	0.62	468
Location and Variety	0.69	467
Functional Tests	0.81	481

# Summary

- **Quality (Varieties)**
  - Pressure for greater access to US varieties
  - AgCanada no longer respects reciprocal exchange of germplasm (and is evolving toward dominance and likely a profit-center)
- **Quality (Grades)**
  - Pressure to evolve toward a commercially consistent specification: *Milling quality*
  - Grade: No. 1 Milling Dark Northern Spring Wheat , Protein: specified 13 to 15 Pct Protein, TW: 58 lb tw or better, Moisture: < 13.5%, Dockage: < 1 1/2%, Damage: <1.5 % , Falling numbers: 300 or better, Vomitoxin: max 2 ppm
- **Ancillary functions:** Over time, likely to evolve to be very similar to those in the US
  - Tighter specifications
  - Inability to compensate for non-conformance to contracts
  - Demurrage costs will become accrued by sellers, which will force greater discipline throughout the supply-chain



*Thank you..... Q&A*



# Canadian standards: Primary

## Wheat, Canada Western Red Spring (CWRS)

Grade name	Standard of quality					Foreign material					
	Minimum test weight kg/hl (g/0.5 L)	Variety	Minimum hard vitreous kernels %	Minimum protein %	Degree of soundness	Ergot %	Excreta %	Matter other than cereal grains %	Sclerotinia %	Stones %	Total %
No. 1 CWRS	75 (365)	Any variety of the class CWRS designated as such by order of the Commission	65	10	Reasonably well matured, reasonably free from damaged kernels	0.01	0.010	0.2	0.01	0.03	0.6
No. 2 CWRS	72 (350)	Any variety of the class CWRS designated as such by order of the Commission	No minimum	No minimum	Fairly well matured, may be moderately bleached or frost-damaged, reasonably free from severely damaged kernels	0.02	0.010	0.3	0.02	0.03	1.2
No. 3 CWRS	69 (335)	Any variety of the class CWRS designated as such by order of the Commission	No minimum	No minimum	May be frost-damaged, immature or weather-damaged, moderately free from severely damaged kernels	0.04	0.015	0.5	0.04	0.05	2.4
No. 4 CWRS	68 (330)	Any variety of the class CWRS designated as such by order of the Commission	No minimum	No minimum	May be severely frost-damaged, immature or weather-damaged, moderately free from other severely damaged kernels	0.04	0.015	0.5	0.04	0.05	2.4
CW Feed	65 (315)	Any class or variety of wheat excluding emmer durum and General Purpose	No minimum	No minimum	Reasonably sweet, excluded from other grades of wheat on account of damaged kernels	0.1	0.030	1	0.1	0.1	10
Grade, if specs for CW Feed not met	Wheat, Sample CW Account Light Weight					Wheat, Sample CW Account Ergot	Wheat, Sample CW Account Excreta	Wheat, Sample CW Account Admixture	Wheat, Sample CW Account Admixture	2.5% or less—Wheat, Rejected grade, Account Stones Over 2.5%—Wheat, Sample Salvage	See Mixed grain

# Canadian standards: Primary

Wheat Canada Western Red Spring (CWRS), continued

Grade name	Wheats of other classes or varieties (*)		Artificial stain, no residue %	Dark, Immature %	Degemmed %	Fireburnt %	Fusarium damage %	Grass green %	Grasshopper, army worm %	Heated	
	Contrasting classes %	Total %								Binburnt severely mildewed, mouldy %	Total %
No.1 CWRS	<u>0.75</u>	<u>2.3</u>	Nil	1	4	Nil	<u>0.25</u>	<u>0.75</u>	1	0.005	0.05
No. 2 CWRS	<u>2.3</u>	<u>4.5</u>	0.05	<u>2.5</u>	7	Nil	0.8	2	3	0.020	0.4
No. 3 CWRS	<u>3.8</u>	<u>7.5</u>	0.10	10	13	Nil	1.5	10	8	0.030	1.0
No. 4 CWRS	<u>3.8</u>	<u>7.5</u>	0.10	10	13	Nil	1.5	10	8	0.030	1.0
CW Feed	No limit-but not more than 10% amber durum end for General Purpose		2	No limit	No limit	2	4	No limit	No limit	<u>2.5</u>	<u>2.5</u>
Grade, if specs for CW Feed not met	Over 10% amber durum and/or General Purpose - Wheat, Sample CW Account Admixture		Wheat, Sample CW Account Stained Kernels			Wheat, Sample CW Account Fireburnt	Wheat, Sample CW Account Fusarium Damage Over 10%- Wheat, Commercial Salvage			Wheat, Sample CW Account Heated	

Grade name	Natural stain %	Pink %	Sawfly, midge %	Shrunken and broken (**)			Smudge and blackpoint		Sprouted	
				Shrunken %	Broken %	Total %	Smudge %	Total %	Severely sprouted %	Total %
No.1 CWRS	0.5	<u>1.5</u>	2.0	4	5	7	0.30	10	0.10	0.5
No. 2 CWRS	2	5	5	4	6	8	1	20	0.20	1.0
No. 3 CWRS	5	10	10	4	7	9	5	35	0.30	3.0
No. 4 CWRS	5	10	10	4	7	9	5	35	0.5	5
CW Feed	No limit	No limit	No limit	No limit	13	No limit within broken tolerances	No limit	No limit	No limit	No limit
Grade, if specs for CW Feed not met					Sample Broken Grain					

(\*) See working tolerance for "Wheats of Other Classes or Varieties"

(\*\*) See truncation rule for "Shrunken and Broken"