

August 26, 2004**FEFO 04-14****GRAIN DELIVERY COMPARISON MODEL: RELEASE OF A NEW FAST TOOL**

A new *Farm Analysis Solution Tool (FAST)* has been released for use. This Microsoft Excel spreadsheet is called the *Grain Delivery Comparison Model* and is useful for comparing net revenues associated with delivering grain up to three different locations. This tool has been developed by Brian Pulley (Illinois Farm Business Farm Management) and myself and can be downloaded from the *FAST* section of *farmdoc* (www.farmdoc.uiuc.edu).

An Example

Figure 1 shows the *Grain Delivery Comparison Model* with a completed example. The “Grain for Delivery” input section in the upper right hand corner of the tool contains entries describing grain to be delivered. In the example, 1,000 bu. of grain having 24% moisture is to be delivered in the month of October. The current cash price for this grain is \$2.40.

The “Input for Alternative Delivery Points” input section has input for two elevators. Entries for elevator 1 are shown in the first two columns while the third column shows input for elevator 2. For elevator 1, the first column shows net returns for sales at harvest while the second column shows net returns for a January sale.

Elevators 1 and 2 have three differences in cost and shrink factors:

1. The elevators have different storage moisture levels. If grain is stored, elevator 1 charges for drying grain to 15% while elevator 2 uses a 14% moisture level (see “Moisture/shrink factors” in Figure 1).
2. The elevators charge different amounts for drying. Elevator 1 charges \$.025 per point to dry grain between 14% and 21.5% moisture levels and \$.02 per point above 21.5%. Elevator 2 charges \$.0275 per point for moisture levels between 14% and 18%, \$.02 per point between 18% and 23%, and \$.015 per point for moisture levels above 23%. Entries for drying charges are made into the *Grain Delivery Comparison Model* by completing the schedule shown in Appendix Figure 1.
3. The elevators charge different amounts for storage. Elevator 1 charges \$.025 per month for each month in storage. Elevator 2 charges \$.13 for placing grain in storage. If grain is stored after January, elevator 2 then charges an additional \$.0225 per month for storing grain (see “Storage costs” in Figure 1).

Based on these input, the tool compares the three alternatives in the “Report on Revenue from Delivery Alternatives” section of the report (see Figure 1). “Dry bushels sold” are calculated for each alternative. Elevator 1 has a higher number of bushels sold (874 bu.) compared to elevator 2 (860 bu.) because elevator 2 shrinks bu. to a lower moisture level (15% for elevator 1 compared to 14% for elevator 2).

The model projects transportation, drying, storage, and interest costs. These costs are subtracted from “Revenue from sales” to arrive at “Net revenue”. Net revenue should be the main comparison between

FIGURE 1. GRAIN DELIVERY COMPARISON
(Beta Version 1.1)



Grain for Delivery

Wet bushels for delivery: 1,000
 Delivery moisture level: 24.0%
 Interest rate: 8%
 Month of delivery: Oct
 Current cash price: \$2.40

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Input for Alternative Delivery Points

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Name of delivery point	Elevator 1	Elevator 1	Elevator 2
Month of grain sale (End of mo.)	On Delivery	Jan	Jan
Sales price (\$/bu)	\$2.40	\$2.50	\$2.50
Moisture/shrink factors			
Shrink factor:	1.4	1.4	1.4
Handling shrink:	0.0%	0.0%	0.0%
Cash sale moisture level:	15.0%	15.0%	15.0%
Storage moisture level:	15.0%	15.0%	14.0%
Pay drying to storage moist?:	Inputs Do Not Apply	Yes	Yes
Transportation costs			
Cost per wet bu:	\$0.06	\$0.06	\$0.06
Drying costs			
Based on wet or dry bu.	Wet	Wet	Wet
Charges vary by moisture level:	Yes	Yes	Yes
Drying charges (\$ per point):	Schedule	Schedule	Schedule
Storage costs			
Drop charges (\$/bu.):	Inputs Do Not Apply	\$0.00	\$0.13
Monthly storage chg begins in:	Not Apply	Oct	Jan
Monthly storage costs (\$/bu.):	Apply	\$0.0250	\$0.0225

Report on Revenue from Delivery Alternatives

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	Elevator 1	Elevator 1	Elevator 2
Wet bushels delivered	1,000.0	1,000.0	1,000.0
Dry bushels sold	874.0	874.0	860.0
Revenue from sales	\$2,097.60	\$2,185.00	\$2,150.00
Projected costs			
Transportation	\$60.00	\$60.00	\$60.00
Drying	212.50	212.50	225.00
Storage	0.00	87.40	131.15
Interest	0.00	55.94	55.94
Total costs	\$272.50	\$415.84	\$472.09
Net revenue	\$1,825.10	\$1,769.16	\$1,677.91
Net revenue per wet bu.	\$1.83	\$1.77	\$1.68
Net revenue per dry bu.	\$2.09	\$2.02	\$1.95
Price to break-even with a \$2.40 sale at delivery:	NA	\$2.56	\$2.69

the alternatives. The alternative with the highest net revenue is generally regarded as the most economical alternative. In the example, the alternative of delivering grain to elevator 1 and selling at harvest has the highest net revenue of \$1825.10.

Inputs for elevators 1 and 2 are fairly indicative of differences that can exist between elevators. As can be seen, these differences can cause differences in net revenues. In the example, elevator 1 has net revenue of \$1,769.16 for selling at \$2.50 per bu. in January while elevator 2 has net of \$1,677.91, a difference of \$91.25. While this amount may not seem large for 1,000 bu., the difference in net revenues becomes more substantial for larger quantities of grain.

For comparison purposes, the *Grain Delivery Comparison Model* also reports “net revenue per wet bu.”, “net revenue per dry bu.” and a break-even price when grain is stored. The break-even price is calculated based on the current cash price entered in the “Grain for Delivery” input section. In the example, at least \$2.56 per bu. must be received from elevator 1 in January to have the same or higher revenue as selling grain in October for \$2.40 per bu.

Summary

The *Grain Delivery Comparison Model* has been developed to aid farmers in evaluating the net revenues associated with alternative grain delivery points. Net revenues can vary between delivery points. Accounting for these differences and delivering grain to the most economic point can aid in maintaining overall farm profitability.

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Appendix Figure 1. Drying Schedule from Grain Delivery Comparison Model.

Return		Drying Schedule		
Enter drying charge per percentage point between the moisture level indicated in the "Moisture Level Range" columns. Levels in the "Moisture Level Range" columns can also be modified.				
Moisture Level Range		Drying Charge per Point (\$ per bu)		
Low	High	Elevator 1	Elevator 1	Elevator 2
14.0%	15.0%	0.0250	0.0250	0.0275
15.0%	16.0%	0.0250	0.0250	0.0275
16.0%	17.0%	0.0250	0.0250	0.0275
17.0%	18.0%	0.0250	0.0250	0.0275
18.0%	18.5%	0.0250	0.0250	0.0200
18.5%	19.0%	0.0250	0.0250	0.0200
19.0%	19.5%	0.0250	0.0250	0.0200
19.5%	20.0%	0.0250	0.0250	0.0200
20.0%	20.5%	0.0250	0.0250	0.0200
20.5%	21.0%	0.0250	0.0250	0.0200
21.0%	21.5%	0.0250	0.0250	0.0200
21.5%	22.0%	0.0200	0.0200	0.0200
22.0%	22.5%	0.0200	0.0200	0.0200
22.5%	23.0%	0.0200	0.0200	0.0200
23.0%	23.5%	0.0200	0.0200	0.0150
23.5%	24.0%	0.0200	0.0200	0.0150
24.0%	24.5%	0.0200	0.0200	0.0150
24.5%	25.0%	0.0200	0.0200	0.0150
25.0%	25.5%	0.0200	0.0200	0.0150
25.5%	26.0%	0.0200	0.0200	0.0150
26.0%	26.5%	0.0200	0.0200	0.0150
26.5%	27.5%	0.1500	0.1500	0.0150