


***The Dollars and Sense of Certified Wheat Seed***


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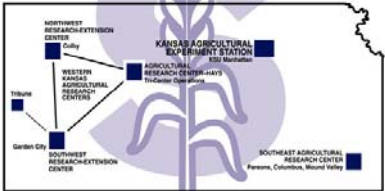
Presented at *Strengthening the Wheat Seed Industry in the Southern Plains Conference*, Wichita Falls, TX – February 13, 2007.



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MF-2498 

***Economic Issues with Certified and Farmer-Saved Wheat Seed***



**Agricultural Industry Competitiveness**

Enhance the value of Kansas Agricultural goods

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

**K-State publication written in 2001.**

**Economic analysis was based on limited data from 1992-1999 and other assumptions at that time.**

**Presentation today is based on essentially the same approach, but using some updated data.**

## Why the interest?

- **Value-added, traceability, etc. issues increase documentation requirements**
- **Tight margins require examination of all business practices**
- **Good margins – you don't want to leave "money on the table"**
- **Better management control**
- **Others ???**

## Certified vs. farmer-saved seed ...

### **Stanelle et al. (1986)**

- ➔ **Use of certified seed ...**
  - ... 31 to 43 percent in eastern Kansas
  - ... 5 to 20 percent in western Kansas
- ➔ **~60% of producers planted two or more varieties**

## Certified vs. farmer-saved seed ...

### Stanelle et al. (1986)

#### → Use of farmer-saved seed two or less years removed from being certified ...

... 85 percent of producers in eastern Kansas

... 70 percent of producers in western Kansas

## What influences producers' wheat variety planting decision?

### Percent of wheat acres planted to a given variety ...

- Percent previous year (+)
- Variety age (-)
- Relative yield (+)
- Yield variability (-)
- Public (+)
- Milling quality (+)
- Production characteristics (+/-)

Source: Barkley and Porter (1996)

## **Certified vs. farmer-saved seed ...**

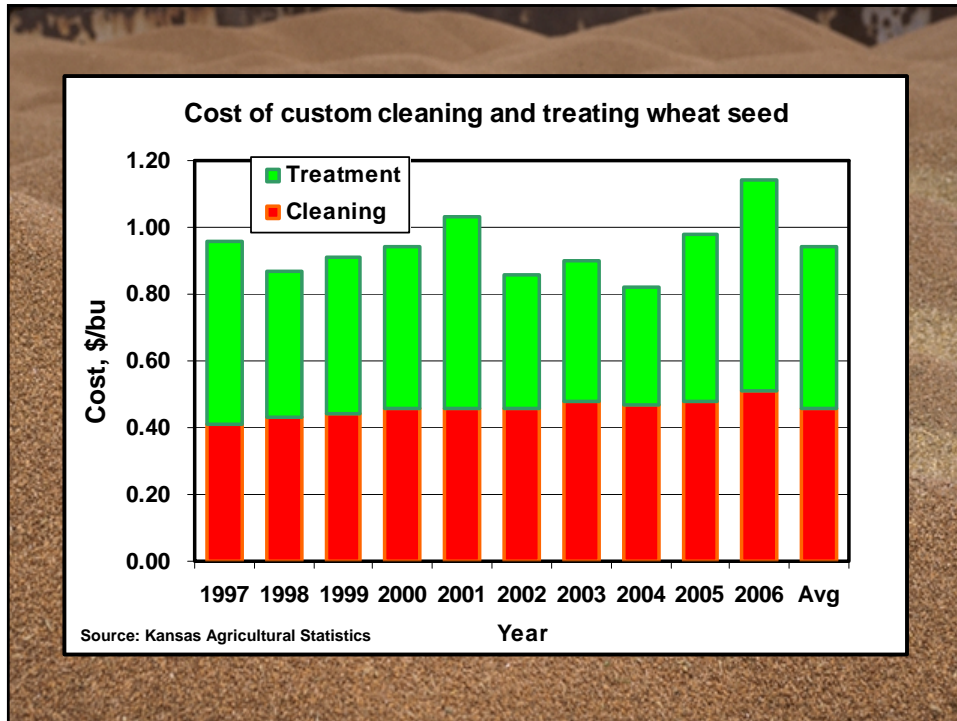
### **Farmer-saved seed defined ...**

- ➔ **Bin-run --- no cleaning, treatment, or testing**
- ➔ **Cleaned --- seed that has been cleaned**
- ➔ **Treated --- cleaned, treated, and possibly tested**

## **Certified vs. farmer-saved seed ...**

### **Stanelle et al. (1986)**

- ➔ **82% of farmer-saved seed was cleaned**
- ➔ **36% of farmer-saved seed was treated**
- ➔ **18% tested for germination or purity by laboratory**



## Economics of certified seed ...

**Absolute returns are irrelevant, we need to compare the net returns of certified seed relative to the next best alternative (i.e., farmer-saved seed).**

## Economics of certified seed ...

### Relative returns depend on ...

- Yield/income differences (MVP)
- Cost differences (MIC)
- If  $MVP > MIC$ , then certified seed is profitable.

## Economics of certified seed ...

### Potential yield/income advantages result from ...

- Seed purity
- Seed damage
- Disease concerns
- Genetic improvements ...
  - ... Higher yield potential (agronomic traits)
  - ... Better quality (milling traits)

## Economics of certified seed ...

### Yield differences ...

- **GCIA Small Grain-Drill Box Survey**  
+3 bu/acre (1985)
- **USDA-ERS**  
+3.5 bu/acre (86/87)  
+1.2 bu/acre (87/88)
- **KSU (Brian Olson)**  
+0.5 bu/acre (05/06 – not statistically significant)

## Economics of certified seed ...

### Cost differences ...

- **Certified seed cost is estimated based on NASS composite survey data (retail level).**
- **Farmer-saved wheat seed cost is estimated based on harvest price, storage cost, and cleaning and treatment cost and adjusted for cleanout.**

Table 1. Estimated Certified Wheat Seed Cost for Kansas, Dollars per Bushel, 1997-2006

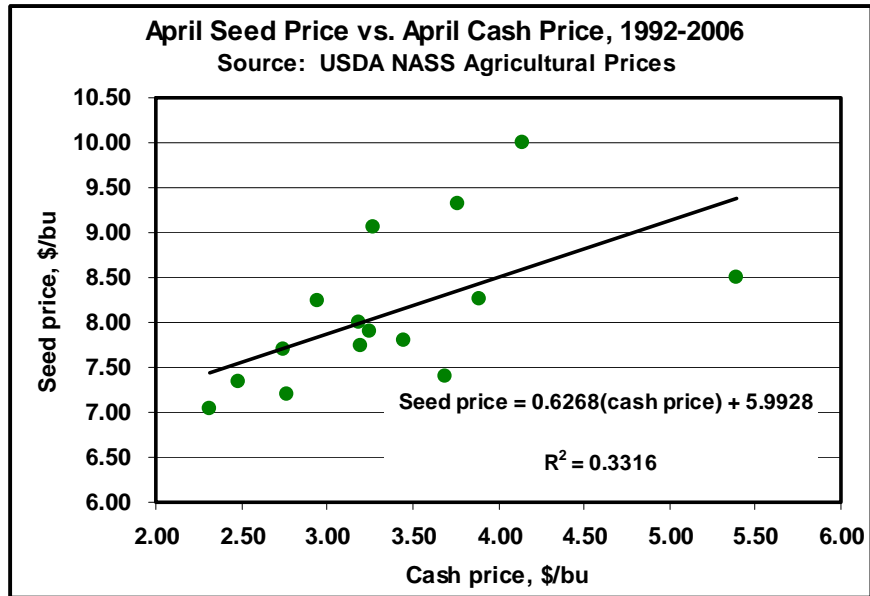
Year	April Composite			Kansas	
	Certified Seed Price <sup>a</sup>	Cash Price <sup>b</sup>	Price-Spread <sup>c</sup>	September Cash Price <sup>b</sup>	Certified Seed Cost Estimate <sup>d</sup>
1997	\$10.00	\$4.14	\$5.86	\$3.39	\$9.25
1998	8.25	2.94	5.31	2.37	7.68
1999	7.35	2.48	4.87	2.33	7.20
2000	7.05	2.32	4.73	2.58	7.31
2001	7.20	2.77	4.43	2.53	6.96
2002	7.70	2.75	4.95	4.33	9.28
2003	8.01	3.19	4.82	3.18	8.00
2004	8.26	3.89	4.37	3.21	7.58
2005	9.06	3.27	5.79	3.32	9.11
2006	9.32	3.76	5.56	4.51	10.07
Avg	\$8.22	\$3.15	\$5.07	\$3.18	\$8.24

<sup>a</sup> Source: USDA's Agricultural Prices (April issue).

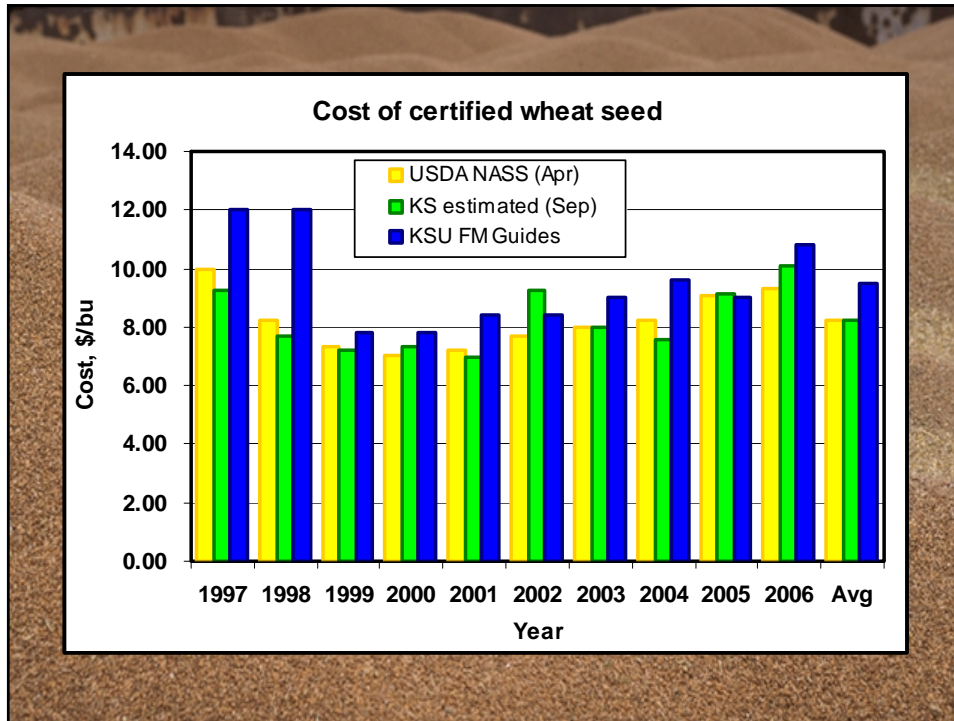
<sup>b</sup> Source: USDA National Agricultural Statistics Service (NASS).

<sup>c</sup> Difference between April Composite Certified Seed Price and the April Composite Cash Price.

<sup>d</sup> Sum of the September Cash Price and the Price-Spread.



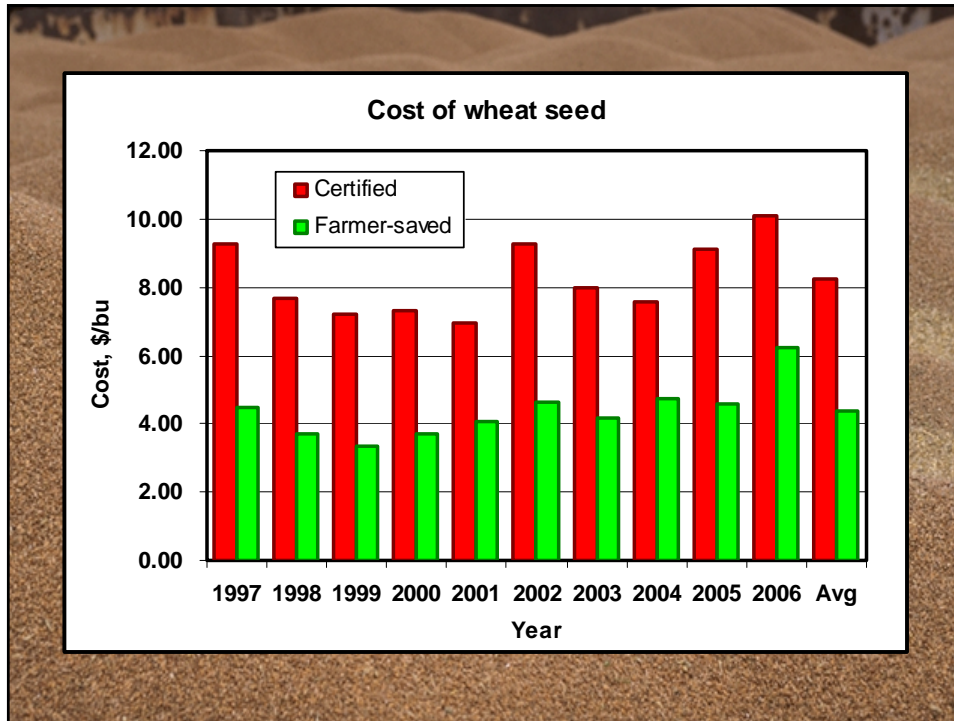
Positive relationship as expected – intercept reflects fixed cost associated with certified seed resulting in certified seed being a “better buy” at high prices



**Table 2. Estimated Farmer-saved Wheat Seed Cost for Kansas, Dollars per Bushel, 1997-2006**

Year	July Cash Wheat Price <sup>a</sup>	Storage Cost <sup>b</sup>	Cleaning Cost <sup>c</sup>	Treatment Cost <sup>c</sup>	Other Cost	Cleanout Credit <sup>d</sup>	Farmer-saved Cost Estimate <sup>e</sup>
1997	\$3.15	\$0.140	\$0.336	\$0.198	\$0.236	(\$0.158)	\$4.47
1998	2.50	0.127	0.353	0.158	0.243	(0.125)	3.72
1999	2.15	0.123	0.361	0.169	0.250	(0.108)	3.36
2000	2.43	0.129	0.377	0.173	0.257	(0.122)	3.70
2001	2.71	0.137	0.377	0.205	0.264	(0.136)	4.06
2002	3.27	0.149	0.377	0.144	0.271	(0.164)	4.65
2003	2.80	0.142	0.394	0.151	0.279	(0.140)	4.15
2004	3.32	0.152	0.385	0.126	0.286	(0.166)	4.72
2005	3.12	0.152	0.394	0.180	0.293	(0.156)	4.56
2006	4.53	0.179	0.418	0.227	0.300	(0.227)	6.23
<b>Avg</b>	<b>\$3.00</b>	<b>\$0.143</b>	<b>\$0.377</b>	<b>\$0.173</b>	<b>\$0.268</b>	<b>(\$0.150)</b>	<b>\$4.36</b>

<sup>a</sup> Source: USDA National Agricultural Statistics Service (NASS).  
<sup>b</sup> Storage cost is calculated as the sum of the physical cost of commercial storage (\$0.026-\$0.030 per bu per month) and interest for three months (2.0 percent multiplied by the July cash price).  
<sup>c</sup> Cleaning and treatment costs are based on rates from Kansas Custom Rates (KASS) and assume 82 and 36 percent of the farmer-saved seed is cleaned and treated, respectively.  
<sup>d</sup> Cleanout credit is based on 10 percent of cleaned bushels removed and valued at 50 percent of the wheat price.  
<sup>e</sup> Equals the sum of the cash price and all costs and adjusted for cleanout credit and bushels of cleanout.



### Example of farm-saved seed cost calculations ...

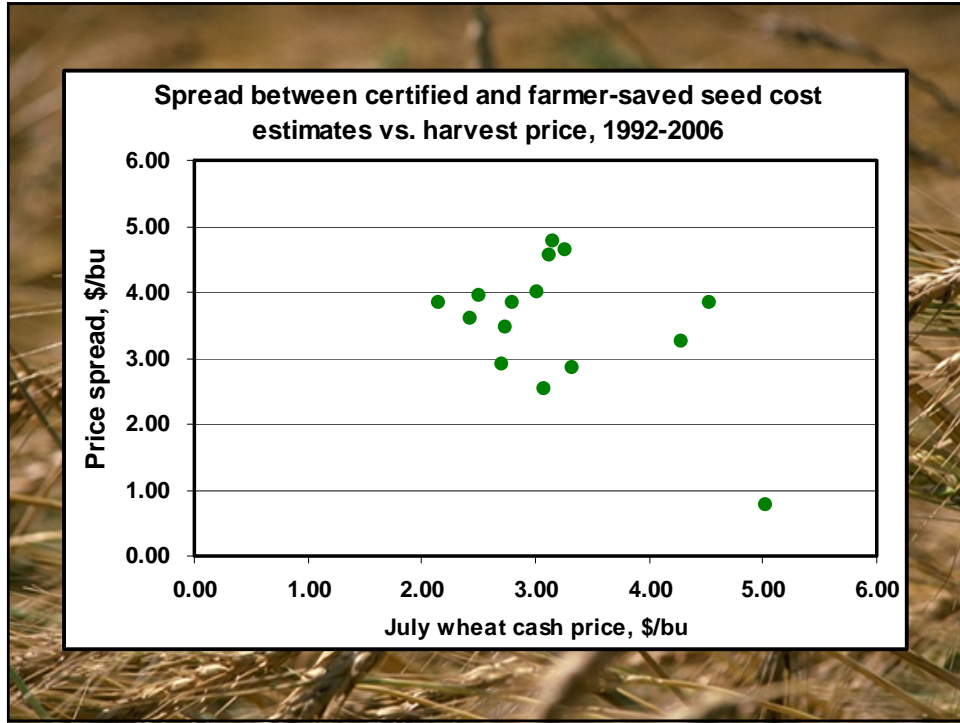
- **100 bushels of seed needed**
- **80% of bushels cleaned**
- **40% of seed treated**
- **10% cleanout**
  
- **20 bushels of bin-run seed**
- **88.9 bushels to clean ( $80 \div 90\%$ )**
- **108.9 total bushels needed**
- **8.9 bushels of cleanout ( $88.9 \times 10\%$ )**
- **40 bushels treated**

### Example of farm-saved seed cost calculations ...


- Price of wheat at harvest = \$4.00
- Cost of storage for 3 months = \$0.15
- Other costs = \$0.25
- Cleaning cost = \$0.50/bu
- Treating cost = \$0.60/bu
- Value of cleanout = \$2.00/bu

### Example of farm-saved seed cost calculations ...

<b>Cost of wheat</b>	<b>\$435.60</b>	(108.9 x \$4.00)
<b>+ Storage cost</b>	<b>16.34</b>	(108.9 x \$0.15)
<b>+ Other costs</b>	<b>27.22</b>	(108.9 X \$0.25)
<b>+ Cleaning</b>	<b>44.45</b>	(88.9 X \$0.50)
<b>+ Treating</b>	<b>24.00</b>	(40.0 X \$0.60)
<b>- Cleanout</b>	<b>17.80</b>	(8.9 X \$2.00)
<b>Total</b>	<b>\$529.81</b>	<b>(\$5.30/bu)</b>



***The impact homegrown seed use has on costs of production and profitability...***



**Electronic Report from the Economic Research Service**  
www.ers.usda.gov

**Characteristics and Production Costs of U.S. Wheat Farms**

Mir B. Ali<sup>1</sup>

In this report... The average cost of producing a bushel of wheat rose \$3.50 for production from 1982 to 1998, ranging from about \$1.25 to more than \$5 per bushel. The cost of producing wheat generally declined as farm size increased. Regional differences in production practices and growing conditions were major influences on production costs and profits among wheat producers. Producers in the Plains (Kansas, a major wheat region, produced wheat at an average cost of \$3.63 per bushel, the lowest cost among regions. Most high-cost farms and very large farms were in the Southeast region; these farms tended to be more diversified than farms in other regions, so wheat contributed a smaller share to their total farm income. **Keywords:** wheat, costs of production, cost variation, wheat use, production practices, farm characteristics, Agricultural Resource Management Study. 1gricultural Economics Research Economics Division, Economic Research Service, USDA.

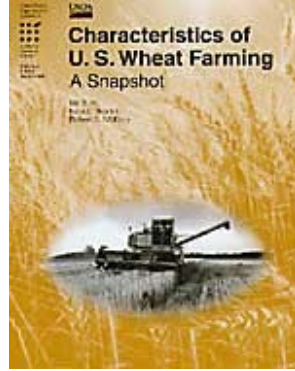
## USDA ERS Report – No. 974-5 (1998 ARMS data)

	Cost Grouping		
	Low-cost	Mid-cost	High-cost
Seed cost, \$/ac	\$6.45	\$8.07	\$7.77
Homegrown seed, %	59	59	62

	Acres planted to wheat				
	< 50	50-199	200-399	400-799	> 800
Seed cost, \$/ac	\$11.67	\$9.71	\$7.61	\$7.10	\$7.18
Homegrown seed, %	32	40	58	64	66
Actual yield, bu/ac	47.8	43.3	39.2	40.5	42.4
Expected yield, bu/ac	45.7	45.0	41.4	40.7	40.1
Returns over TC, \$/ac	-\$61.10	-\$69.74	-\$61.74	-\$48.62	-\$42.74

**Bottom line – no strong evidence one way or the other.**



## USDA ERS Report – No. 968 (1994 Farm Costs and Returns Survey)

	Variable Cost Grouping		
	Low-cost	Mid-cost	High-cost
Seed cost, \$/ac	\$6.64	\$7.41	\$7.90
Homegrown seed, %	36	47	47

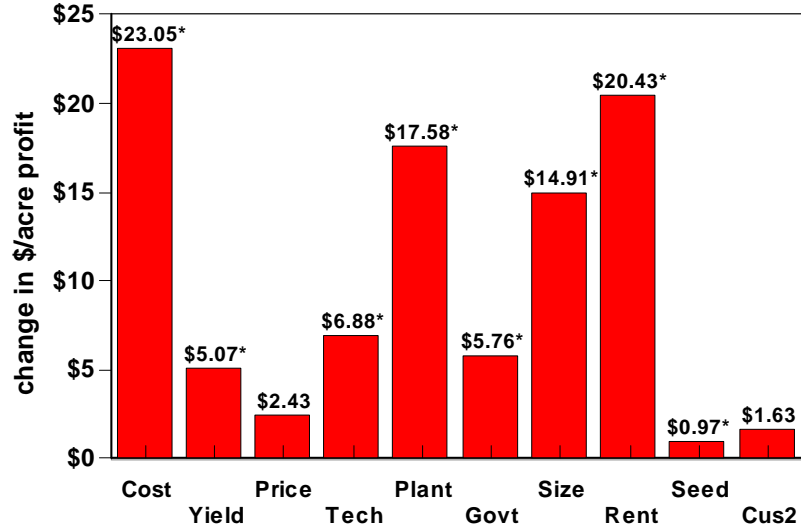
In a regression analysis of all farms, homegrown seed was negatively related to unit costs of production, but was not statistically significant.

On a regional analysis, homegrown seed was negatively related (and statistically significant) to unit costs of production for Central and Southern Plains.

**Bottom line – no strong evidence one way or the other.**

Management factors impact on profitability (KS producers) ...

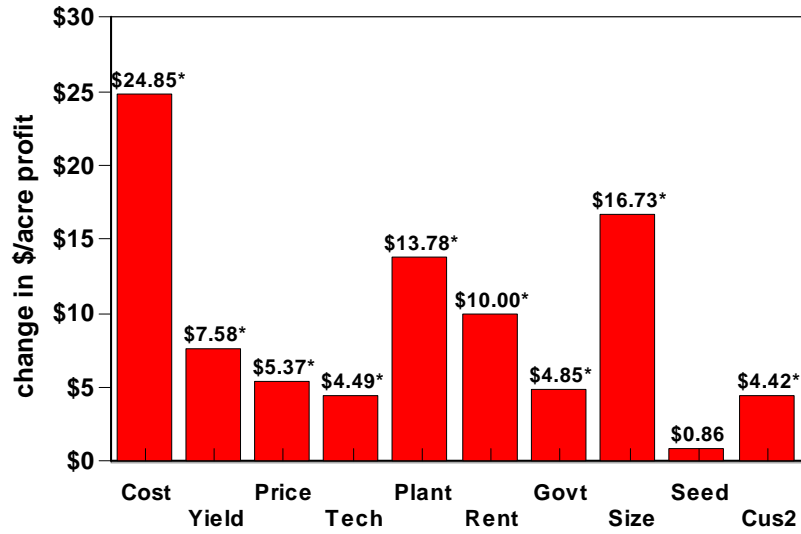
(95-04) diff in profit (over avg farm) by being in best 1/3 of:



\* statistically different from 0 at 90% confidence

Management factors impact on profitability (KS producers) ...

(96-05) diff in profit (over avg farm) by being in best 1/3 of:



\* statistically different from 0 at 90% confidence



Microsoft Excel - Certified seed (Wichita Falls).xls

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ECONOMICS OF CERTIFIED SEED vs FARMER- SAVED SEED				
Cost of certified seed, \$/bu			\$9.000	
Harvest price of farmer-saved seed, \$/bu			\$4.250	
Storage cost	\$0.030 \$/bu/mo	90 days	\$0.090	
Interest cost	90 days	8.5% interest rate	\$0.089	
Cleaning cost	\$0.500 \$/bu	80.0% cleaned	\$0.400	
Treating cost	\$0.600 \$/bu	40.0% treated	\$0.240	
Other cost	\$0.250 \$/bu		\$0.250	
Cleanout value	\$2.125 \$/bu	10.0% cleanout	(\$0.213)	
Cost of farmer-saved seed, \$/bu of seed			\$5.591	
Price spread (certified less farmer-saved) \$/bu			\$3.409	
Certified/farmer-saved ratio			\$1.610	
Marginal harvest/hauling cost, \$/bu			\$0.300	
		<u>Certified</u>	<u>Farm-saved</u>	<u>Difference</u>
Seeding rate, lbs/ac		90	100	-10.0
Expected yield, bu/ac		46.0	45.0	1.0
Expected price, \$/bu		\$4.25	\$4.25	\$0.00

PgDn for results

partial budget / labor cost calculator /

Microsoft Excel - Certified seed (Wichita Falls).xls

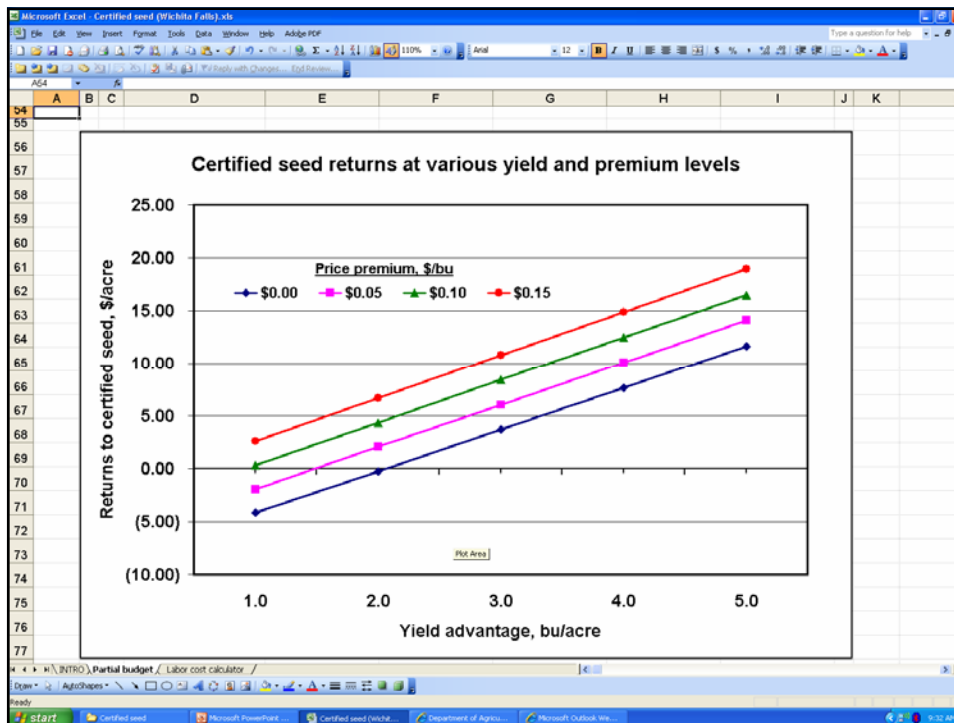
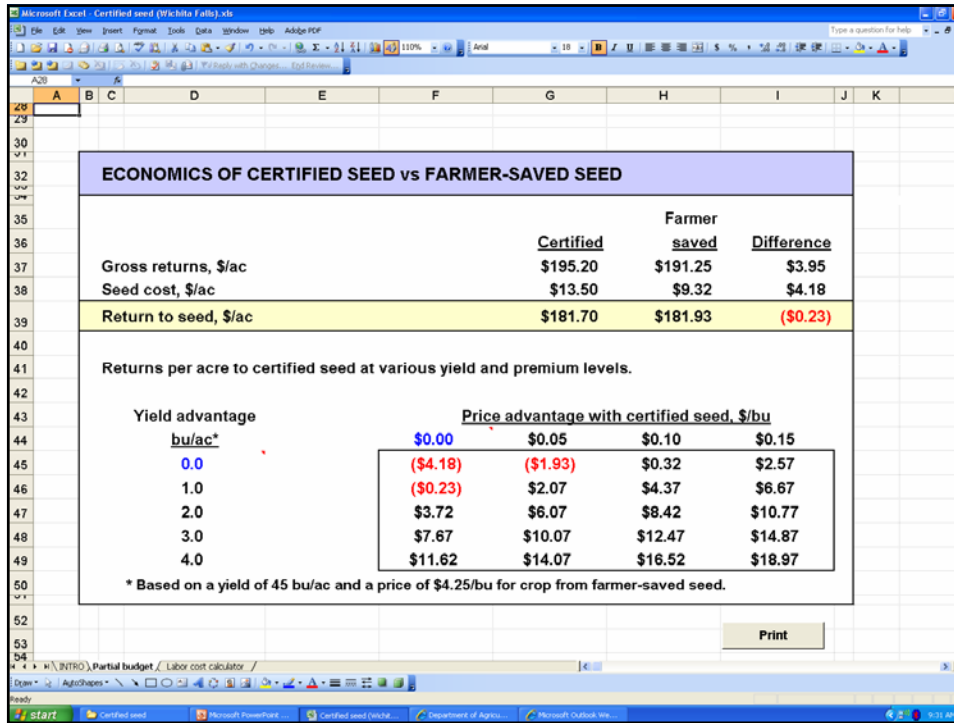
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Estimated labor costs associated with farmer-saved seed	
Labor cost or value, \$/hour	\$12.00
Estimated time associated with saving seed	
Cleaning bins/equipment	4.00 hours
Filling bins at harvest	1.50 hours
Cleaning and treating seed	8.00 hours
Other (specify) <a href="#">(calling around to check on cleaning/treating)</a>	1.00 hours
Other (specify)	0.00 hours
Total hours	14.50
Estimated labor cost associated with saving seed, total \$	\$174.00
Total bushels held back at harvest time intended for seed use	900
Estimated labor cost associated with saving seed, \$/bushel	\$0.193

Print

labor cost calculator /



## Summary

- **Cost of farmer-saved seed is not simply the price of wheat at harvest**
- **Important determinant in economics of certified seed is yield differences (~1 bu/ac advantage needed to breakeven)**
- **High crop prices favor certified seed as value of potentially higher yield increases and relative cost of seed decreases**
- **Certified seed.xls (available at [www.agmanager.info](http://www.agmanager.info)) can be used to examine economic returns of certified seed for specific situations**

The screenshot shows the AgManager website interface. At the top, it reads "AgManager: Crops, Livestock, Marketing and Outlook, Tax Law, Human Resources, and Agricultural" and "A Website Providing Information and Tools For The Competitive Business". The main content area features several promotional boxes for events and resources, including "2006-2007 Ag Profitability Conferences", "2007 Farm Bill Forums", "Risk and Profit Conference", and "2007 Kansas Income Tax Institute". A "Site Updates" section on the right lists recent news items such as "Seasonal Prices - Crops and Cattle", "Livestock and Hay Charts", and "Current Grain Outlook Newsletter". The website footer includes contact information for the Department of Agricultural Economics at Kansas State University and a list of open applications at the bottom of the browser window.

**Questions ???**

You Are Invited!

RSVP  
by 2-1-07

## Strengthening the Wheat Seed Industry in the Southern Plains

February 13th, 2007  
Holiday Inn, Wichita Falls, Texas  
9 a.m. to 4 p.m.

RSVP using the  
enclosed postcard by February 1st, 2007

Topics to include:

- The Value of Certified Seed,
- The Economics of Certified Seed,
- State and Federal Seed Laws,
- Handling Bulk Seed,
- The Farmer's Yield Initiative



This meeting is open to all agricultural producers  
and seedsmen who have an interest in quality  
wheat seed. Lunch served with RSVP.

For more information,  
contact Rob Berchardt at 040-552-8881

Sponsored by AgriPro and Syngenta Crop Protection

## 2007 AgriPro Winter Meeting Southern Plains

### Can Certified Wheat Seed Help You Remain Competitive?

February 13, 2007 Holiday Inn  
Wichita Falls, Texas

AgriPro  
Rob Berchardt,  
AgriPro Southern Plains District Manager

- 8:00 Registration
- 8:30 The Texas Certified Seed Program - Why?  
Bob Terrell, TDA
- 10:10 The Oklahoma Certified Seed Program - Why?  
Roger Dabrowski, OCSA
- 10:30 Break
- 11:00 The History and Status of Certified Wheat Seed  
Frank Chapman/Terry Horton, Kansas State University
- 12:00 Lunch
- 1:00 The Pacific Northwest - Characterization of a Mature Wheat Seed Industry  
Dana Horne, Washington Wheat Commission
- 1:45 Farmer's Yield Initiative/Protecting Your Research Investment  
Mark Henry, Henry Law Firm
- 2:30 Break
- 2:45 Panel Discussion on Wheat Seed Industry in the Southern Plains  
All invited Speakers
- 2:45 Wrap-Up and Questions
- 4:00 Adjourn

