

The Corn & Soybean “Price Protection Net” in Kansas in 2021

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2021 Mini Risk & Profit – 3/3/21



KANSAS STATE UNIVERSITY | Agricultural Economics

The Crop Price & Revenue “Protection Net”

□ The USDA “Safety Net”

- Marketing Loans
- PLC &/or ARC-CO
- Revenue Protection Insurance

□ Farmers’ “Revenue / Price Risk Management Strategies”

- Marketing Plans *with time & price goal dimensions*
- Futures Hedges &/or Forward Contracts (w. Basis, HTA variants)
- Agricultural Options (Puts & Calls)
- Other tools....



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Goal: Assess the Corn-Soybean “Protection Net”

I. Cost of Production ^{KSU} – for a “Point of Reference”

II. USDA & Kansas Market Opportunities Available

- Non-Irrigated Corn^{120 bu/ac} & Soybeans^{45 bu/ac} near Salina, KS
- Irrigated Corn^{225 bu/ac} & Soybeans^{66 bu/ac} near Garden City, KS
- Pricing & Price Protection Opportunities on March 3, 2021

III. Key Issue...

- To compare opportunities in the crop “Price Protection Net” for their relative benefits / costs TODAY



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Corn Costs, Prices, and USDA Price Support as of March 2, 2021

	North Central KS Non-irrigated Corn	Southwest KS Irrigated Corn
Cost of Production – Direct Costs ^{KSU}	\$2.20 /bu @ 120 bu/ac	\$2.02 /bu @ 225 bu/ac
Cost of Production – Total Costs ^{KSU}	\$3.15 /bu @ 120 bu/ac	\$3.48 /bu @ 225 bu/ac
Forward Contract \$ ^{3/2/2021}	\$4.56 /bu ^{Oct2021 Delivery}	\$4.87 /bu ^{Oct2021 Delivery}
Buy Put Option + Basis Contract ^{3/2/2021}	\$4.04 /bu ^{Oct2021 Delivery}	\$4.35 /bu ^{Oct2021 Delivery}
Marketing Loan	\$2.29 /bu ^{9 months post-harvest}	\$2.43 /bu ^{9 months post-harvest}



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Corn Costs, Prices, and USDA Price Support as of March 2, 2021

Revenue Protection \$ - 85% APH	\$4.58 @85% APH — \$3.89 @100% APH <i>Insurance BasicUnit = \$67 /ac</i>	\$4.58 @85% APH — \$3.89 @100% APH <i>Insurance BasicUnit = \$49 /ac</i>
Revenue Protection \$ - 80% APH	\$4.58 @80% APH — \$3.66 @100% APH <i>Insurance BasicUnit = \$47 /ac</i>	\$4.58 @80% APH — \$3.66 @100% APH <i>Insurance BasicUnit = \$32 /ac</i>
Revenue Protection \$ - 75% APH	\$4.58 @75% APH — \$3.44 @100% APH <i>Insurance BasicUnit = \$35 /ac</i>	\$4.58 @75% APH — \$3.44 @100% APH <i>Insurance BasicUnit = \$21 /ac</i>
Revenue Protection \$ - 70% APH	\$4.58 @70% APH — \$3.21 @100% APH <i>Insurance BasicUnit = \$28 /ac</i>	\$4.58 @70% APH — \$3.21 @100% APH <i>Insurance BasicUnit = \$14 /ac</i>
Revenue Protection \$ - 65% APH	\$4.58 @65% APH — \$2.98 @100% APH <i>Insurance BasicUnit = \$24 /ac</i>	\$4.58 @65% APH — \$2.98 @100% APH <i>Insurance BasicUnit = \$10 /ac</i>



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Corn Costs, Prices, and USDA Price Support as of March 2, 2021

PLC Payment: <u>\$3.70^{RP}</u> Less \$4.20 US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: <u>\$3.70^{RP}</u> Less \$3.95 US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: <u>\$3.70^{RP}</u> Less \$3.70 US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: <u>\$3.70^{RP}</u> Less \$3.45 US Avg\$	\$0.25 85% Base Ac. / \$0.21 100% Base Ac.
PLC Payment: <u>\$3.70^{RP}</u> Less \$3.20 US Avg\$	\$0.50 85% Base Ac. / \$0.42 100% Base Ac.
PLC Payment: <u>\$3.70^{RP}</u> Less \$2.95 US Avg\$	\$0.75 85% Base Ac. / \$0.64 100% Base Ac.



Figure 1a. Corn PLC & RMA Revenue Protection Price Coverage - basis Salina, KS as of March 2, 2021

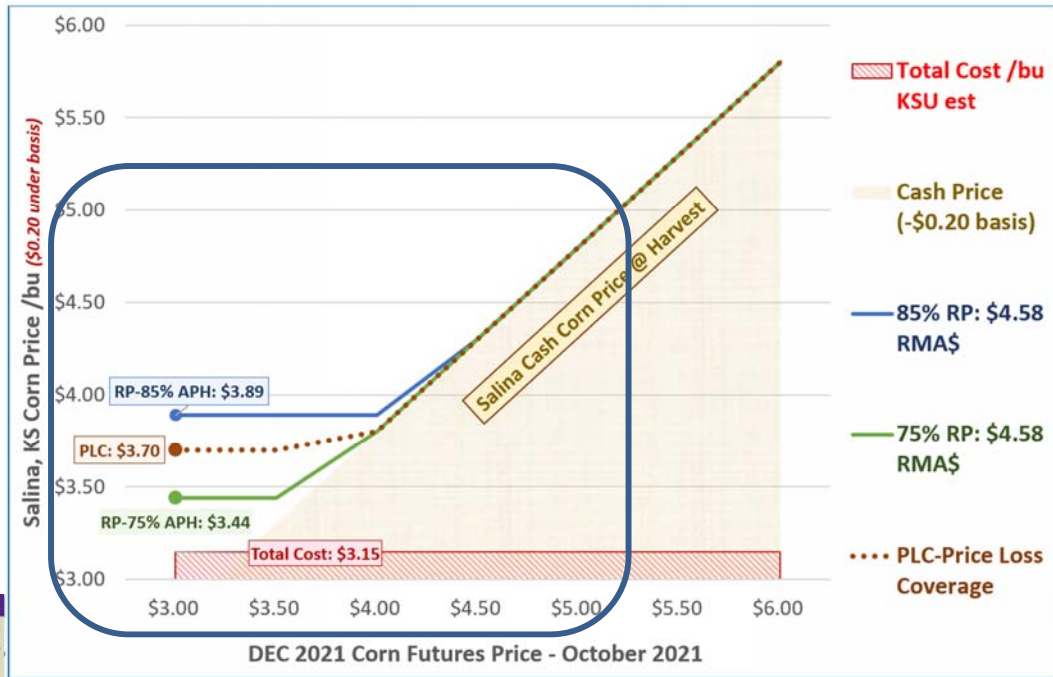


Figure 1b. Corn Forward Contract & Put Option Price Protection Scenarios - basis Salina, KS as of March 2, 2021

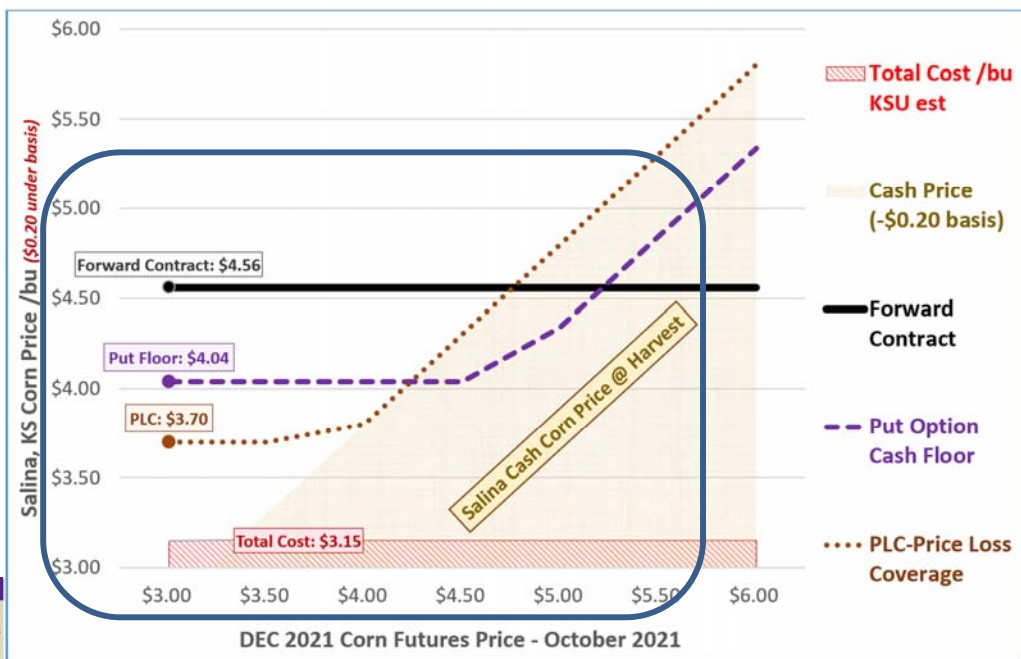
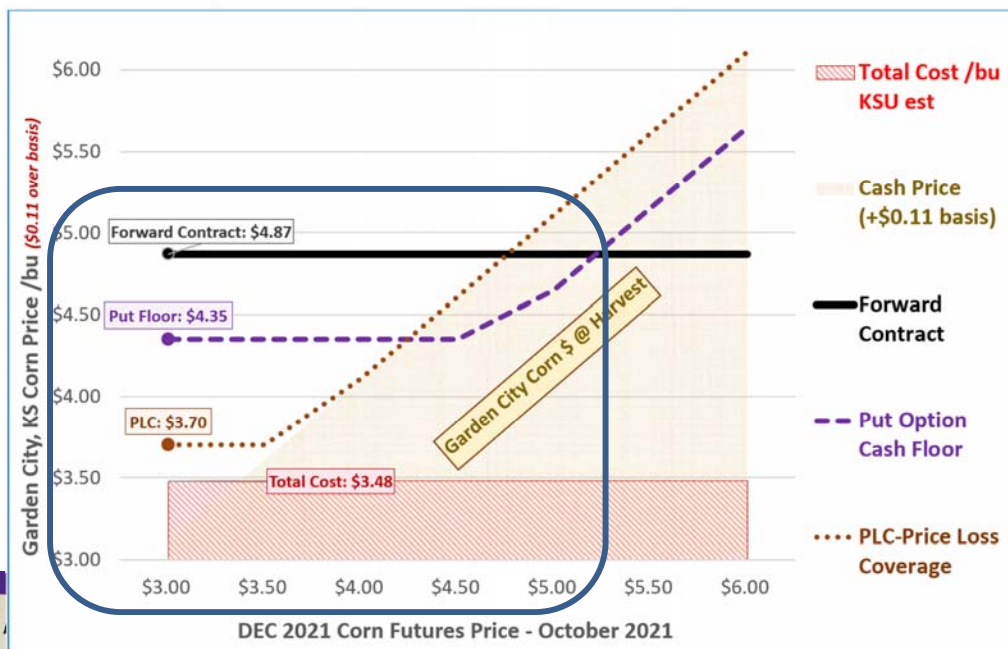


Figure 2a. Corn PLC & RMA Revenue Protection Price Coverage - basis Garden City, KS as of March 2, 2021



Figure 2b. Corn Forward Contract & Put Option Price Protection Scenarios - basis Garden City, KS as of March 2, 2021



Findings for the Corn “Price Protection Net”

- **KSU estimates of 2021 total cost of production of \$3.15 /bu** for non-irrigated corn near Salina (NC KS), and **\$3.48 /bu** for irrigated corn near Garden City (SW KS), on March 2, 2021.
- **Forward contract** pricing opportunities for October 2021 existed in Salina (**\$4.56 /bu**) and Garden City (**\$4.87 /bu**) that cover costs by **40%-45%**.
- **Put option minimum cash price floors** (using basis contracts implicit in the forward contract bids) of **\$4.04 /bu** in Salina, and **\$4.35 /bu** in Garden City also cover corn costs by **25%-28%**.
- **USDA Marketing loan rates** of **\$2.29 - \$2.43 /bu** in Salina & Garden City, respectively, are low enough relative to current corn market opportunities to be considered irrelevant.



More Findings for Corn.....

- The USDA Risk Management Agency (RMA) **Projected Price** for corn **Revenue Protection crop insurance** is **\$4.58 /bu** for 2021.
- After deducting the uncovered portion of the % APH coverage and adjusting for 100% of APH production, **implicit Projected Price coverage** declines to the range of **\$3.44, \$3.66, and \$3.89** for **75%, 80% and 85% APH coverage** of corn.
- **USDA Price Loss Coverage (PLC)** becomes effective for national average corn farm price declines below a **\$3.70 Reference Price** – similar to the 100% APH implicit price coverage in Revenue Protection at **80% APH yield selections**.



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Soybean Costs, Prices, and USDA Price Support as of March 3, 2021 (a.m.)

	North Central KS Non-irrigated Soybeans	Southwest KS Irrigated Soybean
Cost of Production – Direct Costs ^{KSU}	\$6.25 /bu @ 45 bu/ac	\$7.00 /bu @ 66 bu/ac
Cost of Production – Total Costs ^{KSU}	\$8.98 /bu @ 45 bu/ac	\$9.14 /bu @ 66 bu/ac
Forward Contract \$ ^{3/3/2021}	\$11.67 /bu ^{Oct2021 Delivery}	\$11.32 /bu ^{Oct2021 Delivery}
Buy Put Option + Basis Contract ^{3/3/2021}	\$10.76 /bu ^{Oct2021 Delivery}	\$10.41 /bu ^{Oct2021 Delivery}
Marketing Loan	\$6.21 /bu ^{9 months post-harvest}	\$6.04 /bu ^{9 months post-harvest}



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Soybean Costs, Prices, and USDA Price Support as of March 3, 2021 (a.m.)

Revenue Protection \$ - 85% APH	\$11.87 @85% APH — \$10.09 @100% APH <i>Insurance BasicUnit = \$30 /ac</i>	\$11.87 @85% APH — \$10.09 @100% APH <i>Insurance BasicUnit = \$46 /ac</i>
Revenue Protection \$ - 80% APH	\$11.87 @80% APH — \$9.50 @100% APH <i>Insurance BasicUnit = \$20 /ac</i>	\$11.87 @80% APH — \$9.50 @100% APH <i>Insurance BasicUnit = \$31 /ac</i>
Revenue Protection \$ - 75% APH	\$11.87 @75% APH — \$8.90 @100% APH <i>Insurance BasicUnit = \$13 /ac</i>	\$11.87 @75% APH — \$8.90 @100% APH <i>Insurance BasicUnit = \$21 /ac</i>
Revenue Protection \$ - 70% APH	\$11.87 @70% APH — \$8.31 @100% APH <i>Insurance BasicUnit = \$9 /ac</i>	\$11.87 @70% APH — \$8.31 @100% APH <i>Insurance BasicUnit = \$15 /ac</i>
Revenue Protection \$ - 65% APH	\$11.87 @65% APH — \$7.72 @100% APH <i>Insurance BasicUnit = \$7 /ac</i>	\$11.87 @65% APH — \$7.72 @100% APH <i>Insurance BasicUnit = \$11 /ac</i>



Table 1. Comparison of North Central (Salina) & Southwest (Garden City) Soybean Costs, Prices, and USDA Price Support as of March 3, 2021 (a.m.)

PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$12.40$ US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$11.40$ US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$10.40$ US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$9.40$ US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$8.40$ US Avg\$	\$0.00 85% Base Ac. / \$0.00 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$7.40$ US Avg\$	\$1.00 85% Base Ac. / \$0.85 100% Base Ac.
PLC Payment: $\underline{\$8.40}^{RP}$ Less $\$6.40$ US Avg\$	\$2.00 85% Base Ac. / \$1.70 100% Base Ac.



Figure 1a. Soybean PLC & RMA Revenue Protection Price Coverage - basis Salina, KS as of 3/3/2021^{am}

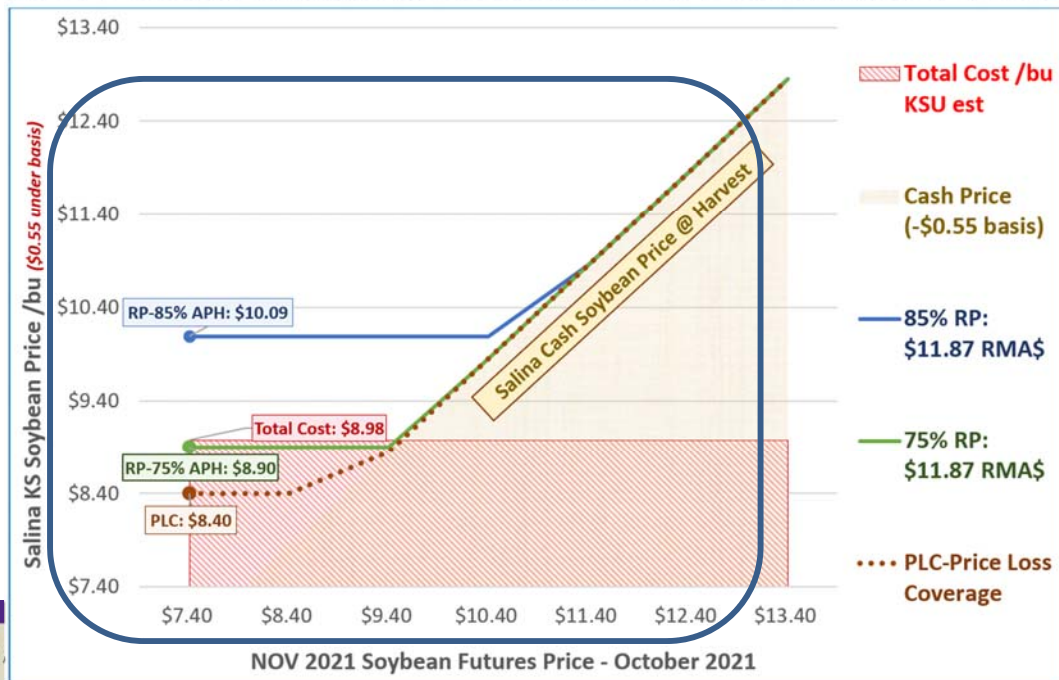
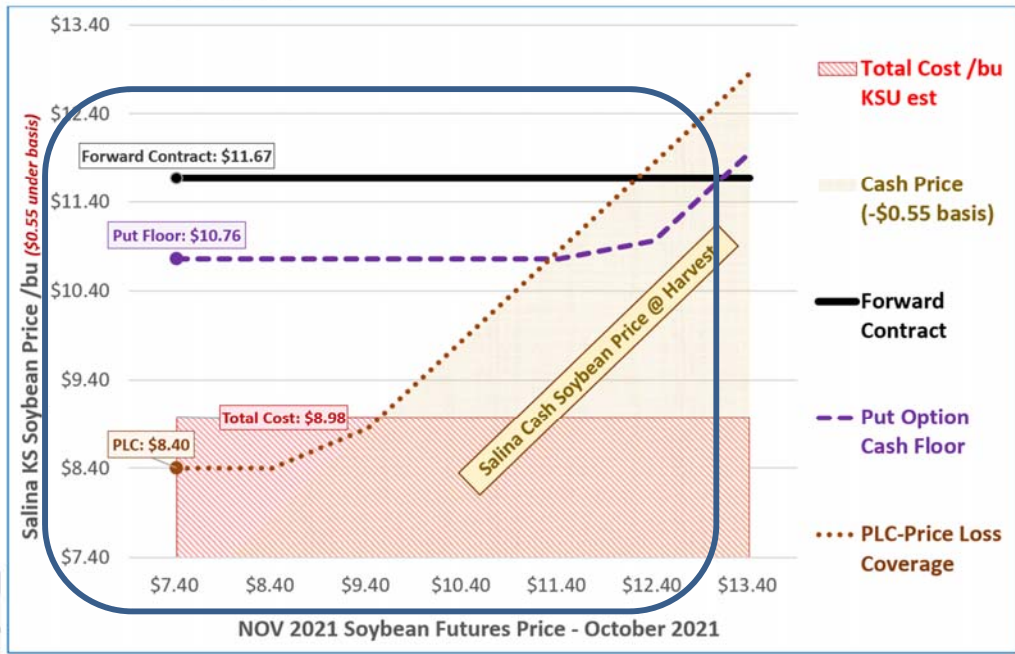
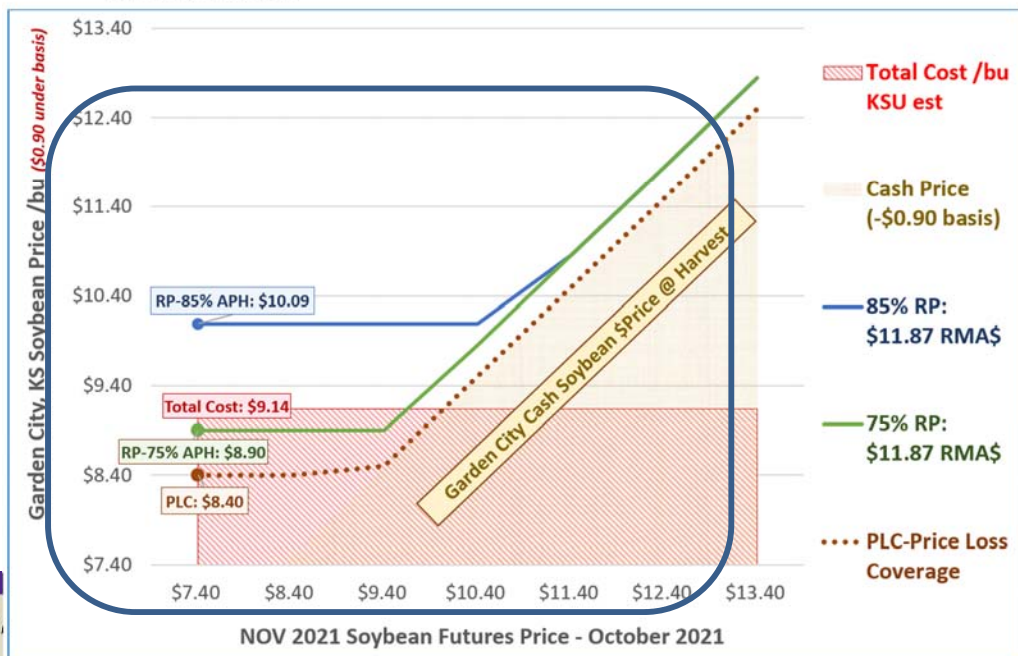


Figure 1b. Soybean Forward Contract & Put Option Price Protection Scenarios - basis Salina, KS as of March 3, 2021 a.m.



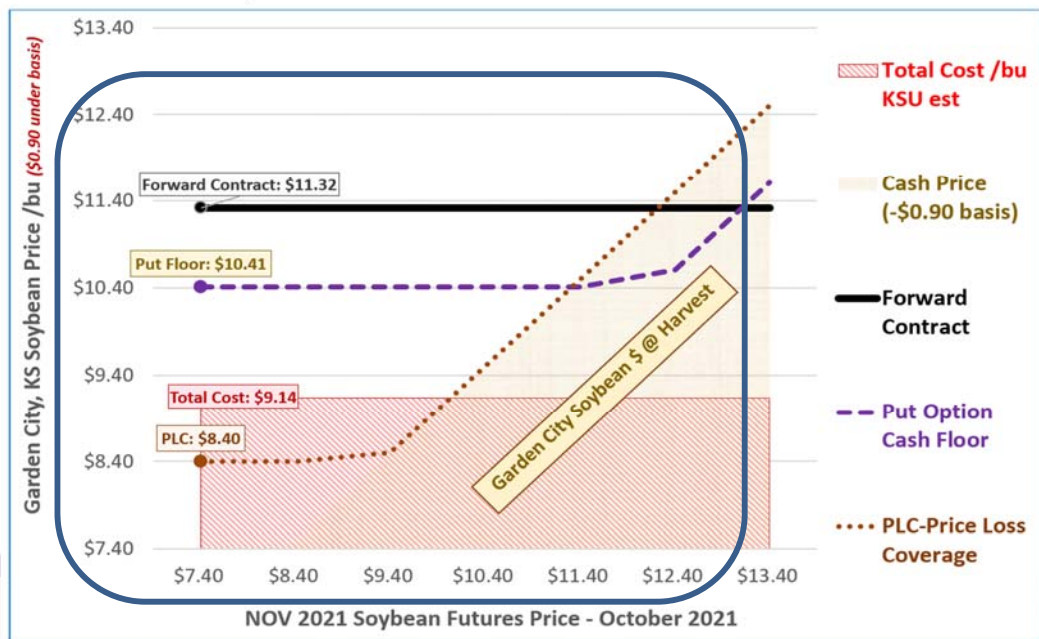
Cultural Economics

Figure 2a. Soybean PLC & RMA Revenue Protection Price Coverage - basis Garden City, KS as of March 3, 2021 a.m.



Cultural Economics

Figure 2b. Soybean Forward Contract & Put Option Price Protection Scenarios - basis Garden City, KS as of March 3, 2021 a.m.



Findings for the Soybean “Price Protection Net”

- **KSU estimates of 2021 total cost of production** of **\$8.98 /bu** for non-irrigated soybeans near Salina (NC KS), and **\$9.14 /bu** for irrigated corn near Garden City (SW KS), on March 3, 2021,
- **Forward contract** pricing opportunities for October 2021 existed in Salina (**\$11.67 /bu**) and Garden City (**\$11.32 /bu**) that cover costs by **24%-30%**.
- **Put option minimum cash price floors** (using basis contracts implicit in the forward contract bids) of **\$10.76 /bu** in Salina, and **\$10.41 /bu** in Garden City also cover corn costs by **14%-20%**.
- **USDA Marketing loan rates** of **\$6.21 - \$6.04 /bu** in Salina & Garden City, respectively, are low enough relative to current soybean market opportunities to be considered irrelevant.

More Findings for Soybeans.....

- The USDA Risk Management Agency (RMA) **Projected Price** for soybean **Revenue Protection** crop insurance is **\$11.87 /bu** for 2021.
- After deducting the uncovered portion of the % APH coverage and adjusting for 100% of APH production, **implicit Projected Price coverage** declines to the range of **\$8.31, \$8.90, and \$9.50** for **70%, 75% and 80% APH coverage** of corn.
- **USDA Price Loss Coverage (PLC)** becomes effective for national average corn farm price declines below a **\$8.40 Reference Price**– similar to the 100% APH implicit price coverage in Revenue Protection at **70% APH yield selections**.



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