Economic Analysis of Adopting No-Till and Cover Crops in Irrigated Cotton Production under Risk

Yubing Fan[1]*, Yangxuan Liu[2], Paul B. DeLaune[1], Partson Mubvumba[1], Seong C. Park[3], Stanley J. Bevers[4]

[1] Texas A&M AgriLife Research, 11708 Highway 70 South, Vernon, TX 76384

[2] University of Georgia, 2360 Rainwater Road, Tifton, GA 31793

[3] Tennessee Tech University, 1 William L Jones Dr, Cookeville, TN 38505

[4] Texas A&M AgriLife Extension, 11708 Highway 70 South, Vernon, TX 76384

* Correspondence: yubing.fan@ag.tamu.edu

Supplementary Material

Number of Tables: 2

Number of Figures: 2

Table S1. Certainty equivalents of net returns ($ ha^{-1}) of cotton production at different risk aversion levels.

Risk aversion level	ARAC†	CT_None	NT_None	NT_Wheat	NT_Mix
		----------$ ha^{-1}----------			
Risk neutral	.0000	1040	1049	1121	1075
Somewhat risk averse	.0009	987	989	1062	1033
Rather risk averse	.0019	935	937	1004	994
Very risk averse	.0028	887	893	950	959
Extremely risk averse	.0037	843	856	900	926

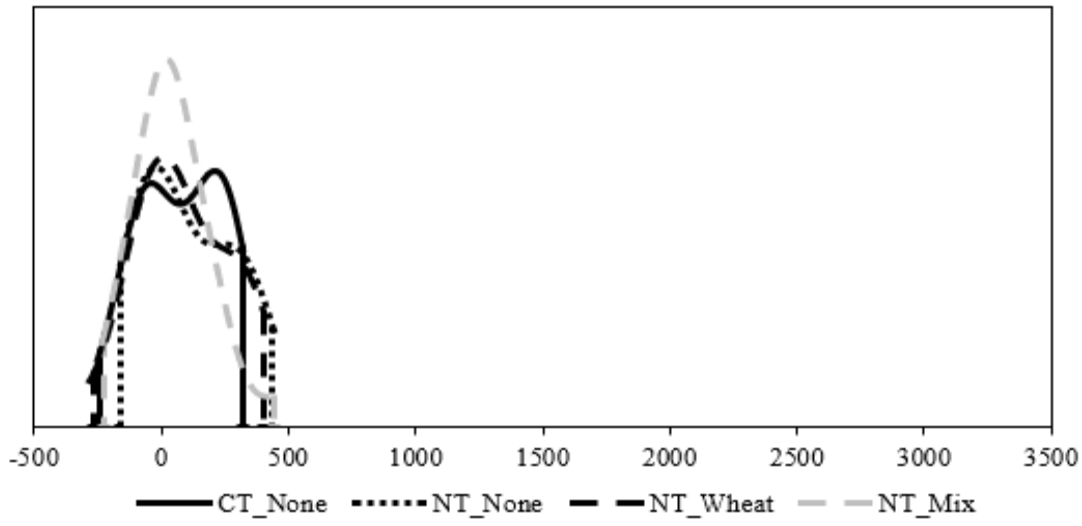
† ARAC, absolute risk aversion coefficient; CT, conventional tillage; NT, no-till.

Table S2. Alternative price levels ($ kg^{-1}) used in the sensitivity analysis.

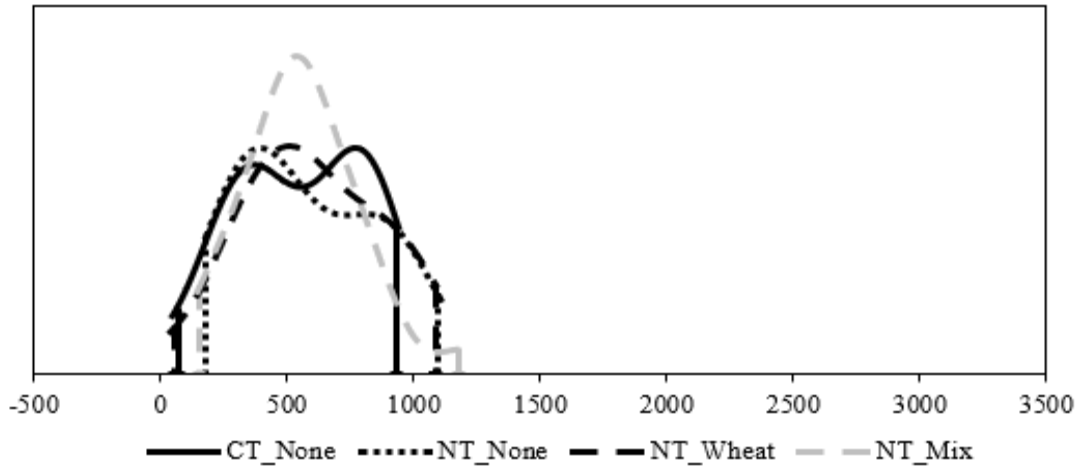
Price	–40%	–20%	Average price†	+20%	+40%
			$ kg^{-1}		
Lint	0.9105	1.2140	1.5174	1.8209	2.1244
Cottonseed	0.1328	0.1771	0.2213	0.2656	0.3099

† The average prices of lint and cottonseed are from USDA-NASS (2019b).

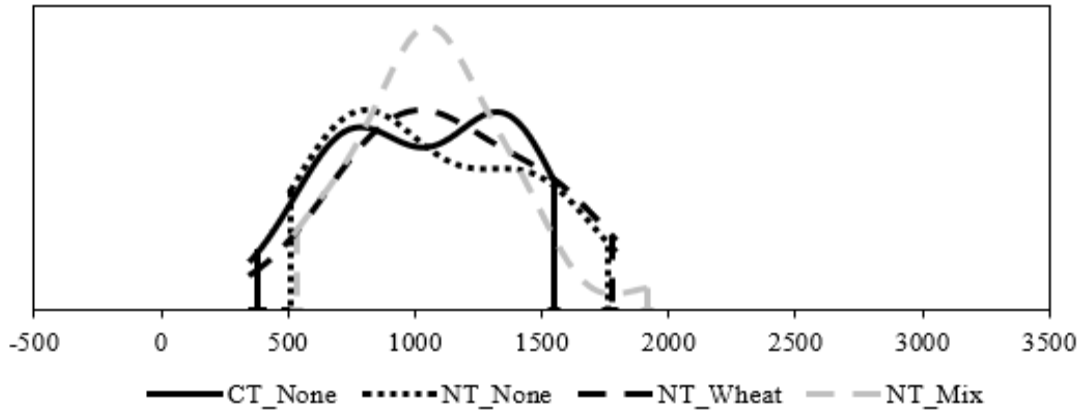
(a) –40%



(b) –20%



(c) Average price



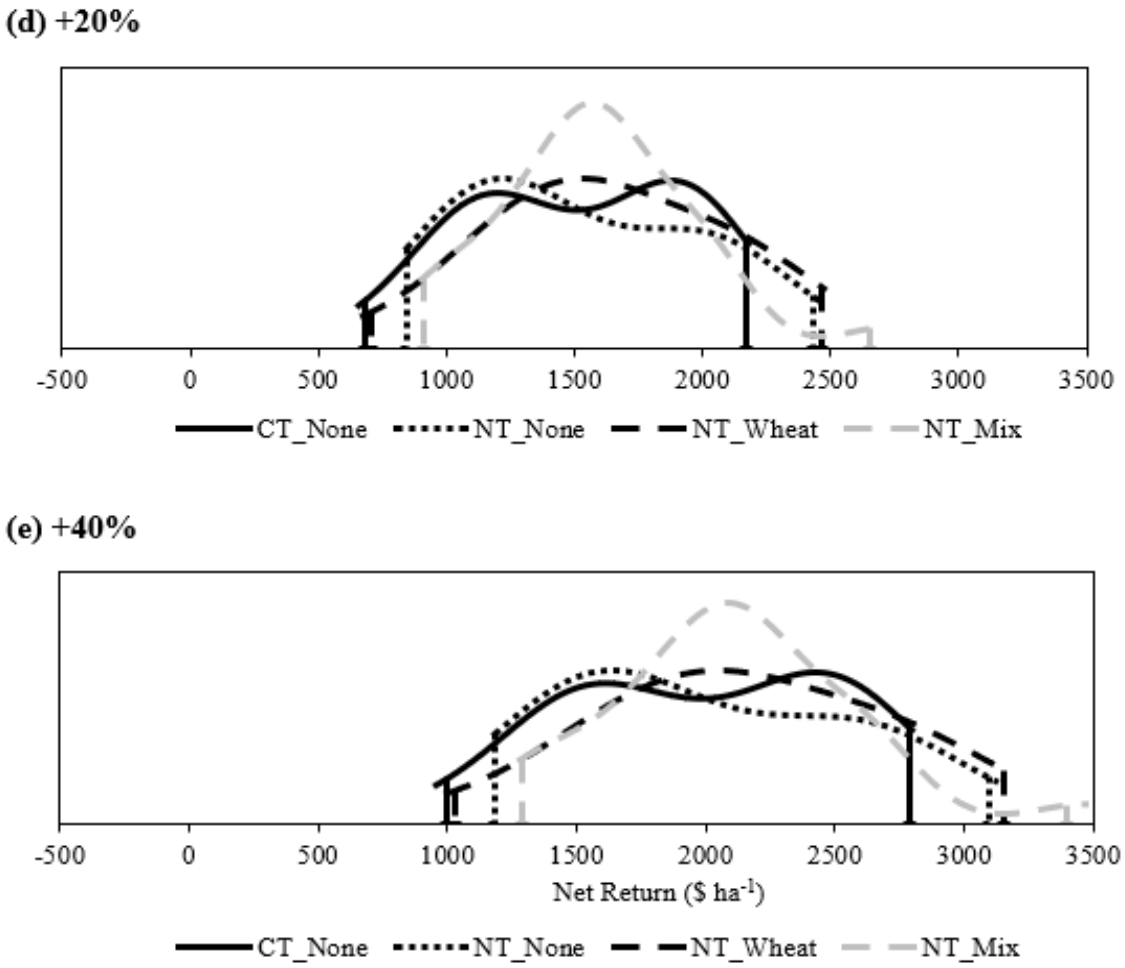
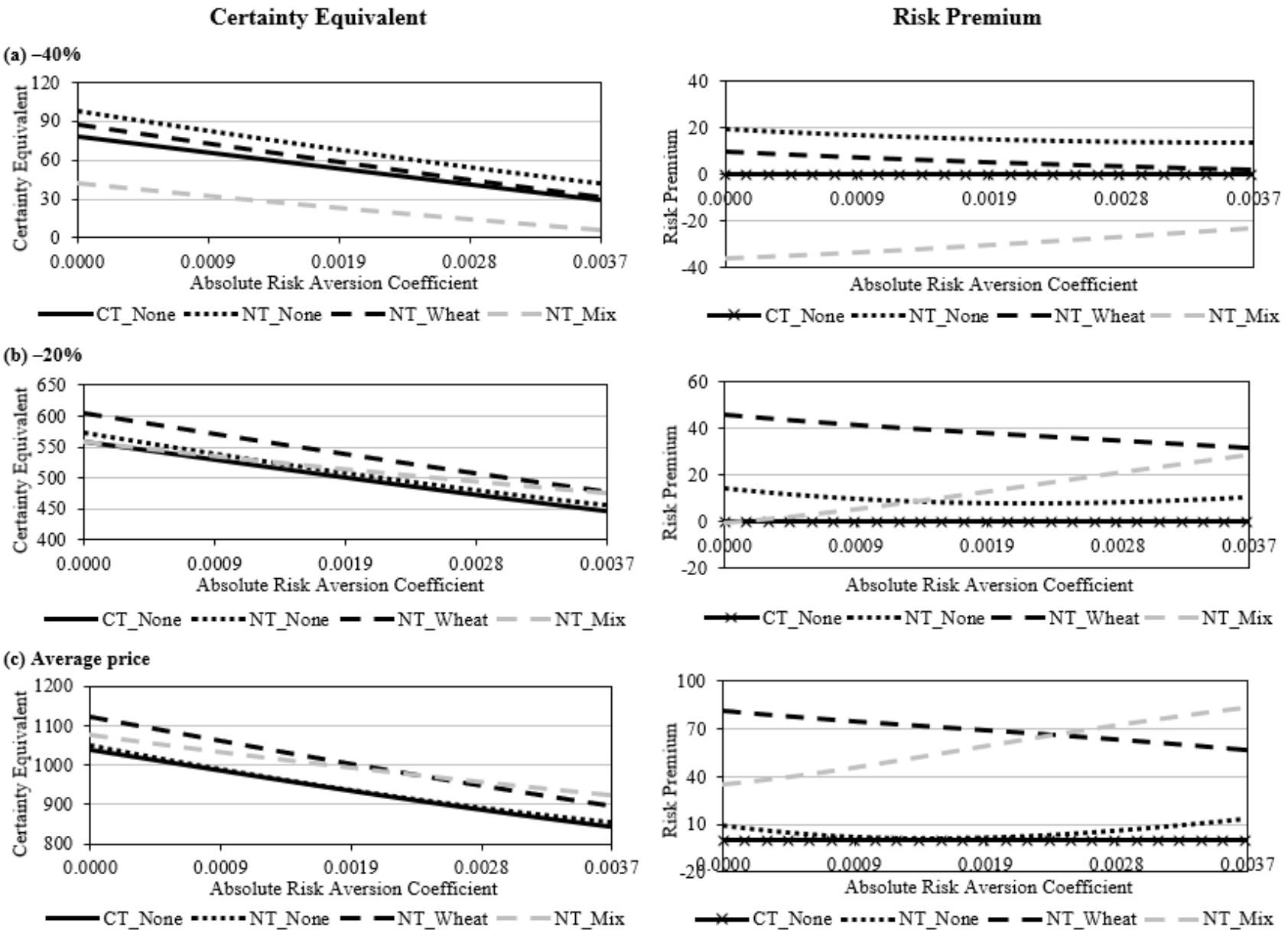


Fig. S1. Probability density functions of net returns at various lint and cottonseed price levels Vertical lines show the 5th and 95th percentiles of each distribution. CT, conventional tillage; NT, no-till.


Certainty Equivalent
Risk Premium
(a) –40%
Certainty Equivalent
120
90
60
30
0
0.0000
0.0009
0.0019
0.0028
0.0037
Absolute Risk Aversion Coefficient
CT_None
NT_None
NT_Wheat
NT_Mix
Risk Premium
40
20
0
-20
-40
(b) –20%
650
600
550
500
450
400
60
40
-20
(c) Average price
1200
1100
1000
900
800
100
70
10

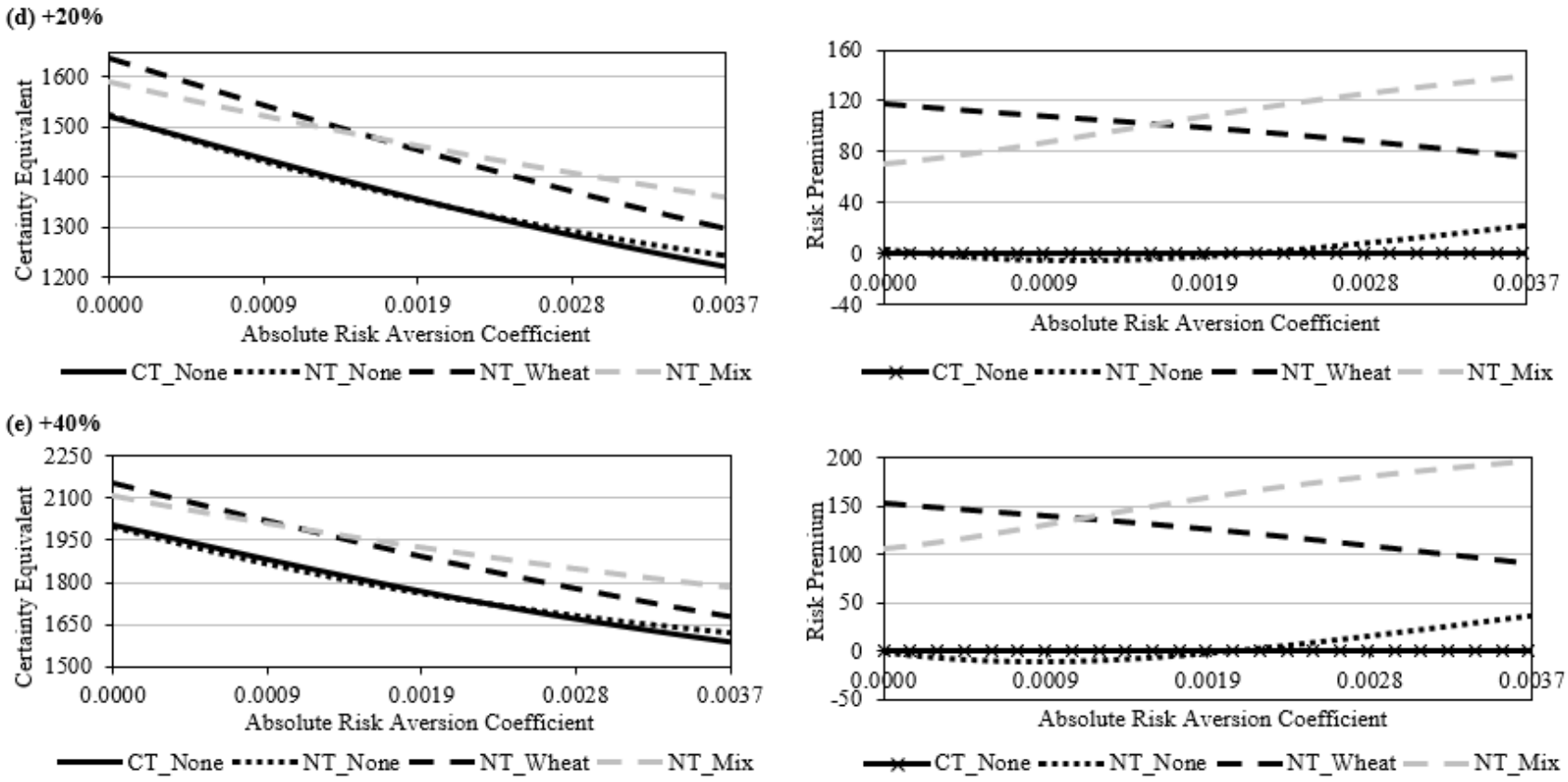


Fig. S2. Certainty equivalent ($ ha^{-1}) and risk premium ($ ha^{-1}) at various lint and cottonseed price levels. CT, conventional tillage; NT, no-till.