**Supplementary material**

**Table S1: Results from the multivariate Probit model (without spatially mediated peer effects)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** |  |  |  |
|  | **Conservation tillage** | **Cover crops** | **Diverse crop rotation** |
| *Location variables* | Coefficient(SE) | Coefficient(SE) | Coefficient(SE) |
| Crop district 30 | -0.729\*\*(0.29) | -0.110(0.21) | 0.324(0.25) |
| Crop district 50 | 0.868(0.54) | 0.207(0.27) | 0.185(0.29) |
| Crop district 60 | -0.925\*\*\*(0.28) | -0.006(0.21) | -0.356(0.24) |
| Crop district 90 | -1.005\*\*\*(0.29) | -0.04(0.21) | -0.399(0.24) |
| Distance to the nearest ethanol plant (miles) |  |  | 0.019\*\*(0.01) |
| *Other control variables* |  |  |  |
| Age | 0.013\*\*\*(0.01) | -0.008\*(0.00) | 0.00(0.01) |
| College education dummy | 0.255\*(0.14) | 0.033(0.13) | 0.077(0.15) |
| Total acres under operation in 2017 (,000 acres) | 0.100\*(0.05) | 0.085\*\*(0.04) | 0.097\*\*(0.05) |
| Own pasture acres (0/1) | -0.016(0.13) | 0.327\*\*\*(0.13) | 0.324\*\*(0.14) |
| Perception of environmental benefits of the practice (index) | 3.800\*\*\*(0.56) | 2.790\*\*\*(0.58) | 1.643\*\*\*(0.63) |
| Family network | -0.238(0.29) | 0.036(0.27) | -0.088(0.30) |
| Organization network | 0.444(0.27) | 0.702\*\*\*(0.27) | -0.208(0.30) |
| Constant | -2.992\*\*\*(0.62) | -2.462\*\*\*(0.63) | -3.02\*\*\*(0.65) |
| N | 507 | 507 | 507 |

\*\*\*, \*\*, \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table S2: Results from the multivariate Probit model with spatially mediated peer effects (50-mile radius peer group)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** |  |  |  |
|  | **Conservation tillage** | **Cover crops** | **Diverse crop rotation** |
| *Location variables* | Coefficient(SE) | Coefficient(SE) | Coefficient(SE) |
| Crop district 30 | -0.29(0.35) | -0.82\*\*\*(0.30) | 0.31(0.25) |
| Crop district 50 | 0.96\*(0.57) | 0.46(0.30) | 0.38(0.29) |
| Crop district 60 | -0.14(0.41) | -0.63\*\*(0.28) | -0.07(0.32) |
| Crop district 90 | -0.35(0.38) | -0.42\*(0.25) | 0.00(0.33) |
| *Spatial peer effect variables* |  |  |  |
| % of adopters in 50-mile radius | 0.03\*\*\*(0.01) | -0.07\*\*\*(0.02) | 0.02(0.01) |
| *Other control variables* |  |  |  |
| Age | 0.01\*\*\*(0.01) | -0.01\*\*(0.01) | 0.00(0.01) |
| College education dummy | 0.21(0.15) | 0.05(0.14) | 0.07(0.15) |
| Total acres under operation in 2017 (,000 acres) | 0.07(0.05) | 0.11\*\*(0.05) | 0.11\*\*(0.05) |
| Own pasture acres (0/1) | -0.09(0.14) | 0.37\*\*\*(0.14) | 0.33\*\*(0.14) |
| Perception of environmental benefits of the practice (index) | 3.76\*\*\*(0.60) | 2.65\*\*\*(0.63) | 1.63\*\*\*(0.62) |
| Family network | -0.10(0.31) | 0.07(0.29) | -0.06(0.30) |
| Organization network | 0.42(0.29) | 0.65\*\*(0.29) | -0.26(0.29) |
| Constant | -5.24\*\*\*(1.02) | 1.64(1.20) | -2.58\*\*\*(0.82) |
| N | 435 | 435 | 435 |

\*\*\*, \*\*, \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table S3: Results from the multivariate Probit model (with distance to ethanol plant variable and no spatial peer effect variable for DCR)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** |  |  |  |
|  | **Conservation tillage** | **Cover crops** | **Diverse crop rotation** |
| *Location variables* | Coefficient(SE) | Coefficient(SE) | Coefficient(SE) |
| Crop district 30 | -0.62\*(0.32) | -0.06(0.24) | 0.31(0.24) |
| Crop district 50 | 0.79(0.55) | 0.29(0.30) | 0.19(0.29) |
| Crop district 60 | -0.63\*(0.34) | -0.02(0.23) | -0.36(0.24) |
| Crop district 90 | -0.80\*\*(0.32) | -0.03(0.23) | -0.41\*(0.24) |
| *Spatial peer effect variables* |  |  |  |
| Distance to the nearest ethanol plant (miles) | No | No | 0.02\*\*\*(0.01) |
| % of adopters in 15 mile radius | 0.01\*\*\*(0.00)) | 0.00(0.00) | No |
| *Other control variables* |  |  |  |
| Age | 0.01\*\*\*(0.01) | -0.01\*\*(0.01) | 0.00(0.01) |
| College education dummy | 0.20(0.15) | 0.05(0.14) | 0.08(0.15) |
| Total acres under operation in 2017 (,000 acres) | 0.08(0.05) | 0.11\*\*(0.05) | 0.10\*\*(0.05) |
| Own pasture acres (0/1) | -0.10(0.14) | 0.32\*\*(0.13) | 0.32\*\*(0.14) |
| Perception of environmental benefits of the practice (index) | 3.81\*\*\*(0.60) | 2.65\*\*\*(0.64) | 1.64\*\*\*(0.63) |
| Family network | -0.08(0.30) | 0.11(0.28) | -0.07(0.30) |
| Organization network | 0.38(0.29) | 0.58\*\*(0.28) | -0.23(0.30) |
| Constant | -3.90\*\*\*(0.77) | -2.22\*\*\*(0.72) | -2.36\*\*\*(0.69) |
| N | 435 | 435 | 435 |

\*\*\*, \*\*, \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table S4: Marginal effects from the multivariate Probit model (with distance to ethanol plant variable and no spatial peer effect variable for DCR)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** |  |  |  |
|  | **Conservation tillage** | **Cover crops** | **Diverse crop rotation** |
| *Location variables* | Coefficient(SE) | Coefficient(SE) | Coefficient(SE) |
| Crop district 30 | 0.174\*\*(0.09) | -0.023(0.08) | 0.090(0.07) |
| Crop district 50 | 0.222(0.15) | 0.103(0.10) | 0.054(0.08) |
| Crop district 60 | -0.176\*(0.09) | -0.006(0.08) | -0.104(0.07) |
| Crop district 90 | -0.225\*\*(0.09) | -0.010(0.08) | -0.117\*(0.07) |
| *Spatial peer effect variables* |  |  |  |
| Distance to the nearest ethanol plant (miles) | No | No | 0.006\*\*\*(0.00) |
| % of adopters in 15 mile radius | 0.003\*\*\*(0.00) | 0.000(0.00) | No |
| *Other control variables* |  |  |  |
| Age | 0.003\*\*\*(0.00) | -0.004\*\*(0.00) | 0.000(0.00) |
| College education dummy | 0.056(0.04) | 0.019(0.05) | 0.022(0.04) |
| Total acres under operation in 2017 (,000 acres) | 0.028(0.040) | 0.039\*\*(0.02) | 0.028\*\*(0.01) |
| Own pasture acres (0/1) | -0.028(0.040) | 0.113\*\*(0.05) | 0.091\*\*(0.04) |
| Perception of environmental benefits of the practice (index) | 1.067\*\*\*(0.13) | 0.935\*\*\*(0.21) | 0.470\*\*\*(0.17) |
| Family network | -0.022(0.08) | 0.037(0.09) | -0.020(0.08) |
| Organization network | 0.105(0.08) | 0.205\*\*(0.09\_ | -0.065(0.09) |

\*\*\*, \*\*, \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Figure S1: Location of ethanol plants in eastern South Dakota**

