List of Tables for the *N Model in Iowa Agricultural Systems*:

Table 1. Nitrogen stocks and flows
Table 2. Stocks and flows in the water submodel
Table 3. Sources of data and model parameters

Appendices:

S1. Climate data
S2. Planting and harvest schedules
S3. Crop biomass
S4. N Fixation
S5. Soil moisture
S6. Management
S7. Stream
S8. Process parameters

Table 1. Nitrogen stocks and flows in *N Model in Iowa Agricultural Systems*.

	Units	Equations/Tables	Notes
Stocks			
Soil Inorganic N	kg/ha	Flow_N_Fixation + Flow_N_Mineralization – Flow_N_Loss – Flow_Denitrification – Flow_N_Immobilization – Flow_N_Uptake	
Soil Organic N	kg/ha	Flow_N_Immobilization + Flow_Detrital_N – Flow_N_Mineralizatio*n*	
Atmospheric N_2	kg/ha	Flow_Denitrification - Flow_N_Fixation	
Crop N	kg/ha	Flow_N_Uptake - Flow_Detrital_N – Flow_Harvest_N	
Yield N	kg/ha	Flow_Harvest_N	
Stream N	kg/ha	Flow_N_Loss	
Flows			
N Uptake	kg ha^{-1} mo^{-1}	Stock_Soil_Inorganic_N $*$ fTemp * fSoilMoisture * ManageRBFactor * CropRBFactor	
Denitrification	kg ha^{-1} mo^{-1}	Portion of Stock_Soil_Inorganic_N * DenitrificationFactor	Soil water near saturation value; Temp > 0.0
N Fixation	kg ha^{-1} mo^{-1}	Based on crop and quantity of fertilizer selected (Table); Rate is zero if crop is corn.	
N Immobilization	kg ha^{-1} mo^{-1}	Portion of Stock_Soil_Inorganic_N * ImmobilizationFactor * fTemp * fSoilMoisture	
N Mineralization	kg ha^{-1} mo^{-1}	Stock_Soil_Organic_N * MineralizationFactor * fTemp * fSoilMoisture	
N Stream Loss	kg ha^{-1} mo^{-1}	Portion of Stock_Soil_Inorganic_N * (toStream / (300 – fieldCapacity) * StreamFactor	
Harvest N	kg ha^{-1} mo^{-1}	Portion of Stock_Crop_N	Table
Detrital N	kg ha^{-1} mo^{-1}	Portion of Stock_Crop_N	Table

Table 2. Stocks and flows in the water submodel for the *N Model in Iowa Agricultural Systems*.

	Units	Equations/Tables
Stocks		
Precip	mm	PrecipTransfer
SoilWater	mm	PrecipTransfer – toCrop_ET – Evaporation – toStream
EvaporatedWater	mm	Evaporation
CropWater	mm	toCrop_ET
Stream	mm	Flow_Harvest_N
Stream N	mm	toStream
Flows		
PrecipTransfer	mm mo^{-1}	Monthly precipitation is placed in precip (stock) and transferred during the period Monthly precipitation is based on Table X Monthly mean temperature must be above 0°C or precipitation is held in stock until spring thaw.
Evaporation	mm mo^{-1}	(0.37 * monthlyTemp) + 9.8711. See Table X for calculations. Monthly temp is based on the calendar month. See Table X. If value is > the constant wiltingPoint, the flow is 0.0**.**
toCrop_ET	mm mo^{-1}	Table lookup based on crop and calendar month If lookup > available water, flow is available water Available water is defined as "water up to saturation point less wilting Point"
toStream	mm mo^{-1}	*StreamFactor * (soilWater – fieldCapacity)* StreamFactor is a table lookup based on management selection (not the same as nitrogen model) soilWater is a stock fieldCapacity is a constant

Table 3. Sources of data and model parameters for *N in Ag Systems* model.

Data or parameter	Source
Climate data	https://mesonet.agron.iastate.edu/
Estimation of evaporation rates	Linacre 1977
Soil organic C and N	Russell et al, 2005; Russell et al. 2009
Crop NPP, detrital inputs to soil	Russell et al. 2009; Egli and Leggett 1973,
Corn yield	https://crops.extension.iastate.edu/crops/corn https://www.extension.iastate.edu/agdm/
Soybean yield and water use	Alessi and Power 1982 https://crops.extension.iastate.edu/crops/soybeans https://www.extension.iastate.edu/agdm/
Alfalfa yield	Undersander et al. 2011 https://store.extension.iastate.edu/product/15234
Crop N requirements	Olson and Kurtz 1982
Crop seasonal dynamics	https://crops.extension.iastate.edu/facts/
Temperature response of C3 & C4 crops	Yamori et al. 2014
Effects of no-till on soil C	Kanwar et al. 2013
Denitrifcation and NO_3 transport in streams	Royer et al. 2004; Royer et al. 2006 Lawlor et al. 2008
N leaching in riparian zones	Vidon et al. 2010
Nitrate reduction strategies	http://castellanolab.weebly.com/uploads/1/1/9/6/11961629/nr_committee,_helmers,_castellano,_feb_2015_3.pdf
Economic factors	https://www.extension.iastate.edu/agdm/

References Cited

Alessi, J. and Power, J.F., 1982. Effects of Plant and Row Spacing on Dryland Soybean Yield and Water-Use Efficiency 1. *Agronomy Journal*, *74*(5), pp.851-854.

Egli, D.B. and Leggett, J.E., 1973. Dry Matter Accumulation Patterns in Determinate and Indeterminate Soybeans 1. *Crop Science*, *13*(2), pp.220-222.

Kanwar, R.S., Colvin, T.S. and Karlen, D.L., 1997. Ridge, moldboard, chisel, and no-till effects on tile water quality beneath two cropping systems. *Journal of Production Agriculture*, *10*(2), pp.227-234.

Lawlor, P.A., Helmers, M.J., Baker, J.L., Melvin, S.W. and Lemke, D.W., 2008. Nitrogen application rate effect on nitrate-nitrogen concentration and loss in subsurface drainage for a corn-soybean rotation. *Transactions of the ASABE*, *51*(1), pp.83-94.

Linacre, E.T., 1977. A simple formula for estimating evaporation rates in various climates, using temperature data alone. Agric. Meteorol. 18:409-424.

Olson, R.A. and Kurtz, L.T., 1982. Crop nitrogen requirements, utilization, and fertilization. *Nitrogen in agricultural soils*, *22*, pp.567-604.

Royer, T.V., David, M.B. and Gentry, L.E., 2006. Timing of riverine export of nitrate and phosphorus from agricultural watersheds in Illinois: Implications for reducing nutrient loading to the Mississippi River. *Environmental science & technology*, *40*(13), pp.4126-4131.

Table 3. p. 1/3

Royer, T.V., Tank, J.L. and David, M.B., 2004. Transport and fate of nitrate in headwater agricultural streams in Illinois. *Journal of Environmental Quality*, *33*(4), pp.1296-1304.

Russell, A.E., Cambardella, C.A., Laird, D.A., Jaynes, D.B. and Meek, D.W., 2009. Nitrogen fertilizer effects on soil carbon balances in Midwestern US agricultural systems. *Ecological applications*, *19*(5), pp.1102-1113.

Russell, A.E., Laird, D.A., Parkin, T.B. and Mallarino, A.P., 2005. Impact of nitrogen fertilization and cropping system on carbon sequestration in Midwestern Mollisols. *Soil Science Society of America Journal*, *69*(2), pp.413-422.

Undersander, D. and Cosgrove, D., 2011. *Alfalfa management guide*. American Society of Agronomy Crop Science Society of America Soil Science Society of America.

Vidon, P., Allan, C., Burns, D., Duval, T.P., Gurwick, N., Inamdar, S., Lowrance, R., Okay, J., Scott, D. and Sebestyen, S., 2010. Hot spots and hot moments in riparian zones: potential for improved water quality management 1. *JAWRA Journal of the American Water Resources Association*, *46*(2), pp.278-298.

Yamori, W., Hikosaka, K. and Way, D.A., 2014. Temperature response of photosynthesis in C3, C4, and CAM plants: temperature acclimation and temperature adaptation. *Photosynthesis research*, *119*(1), pp.101-117.

Table 3. p. 2/3

Table 4.

    H1: Planting continuous corn with N fertilizer at 270 in spring increases Yield.
       Results:

	Parameter Settings			Final N Stocks (All in kg/ha)					
	Cropping system	Fertilizer	Manage-ment	Atmo-sphere	Soil In-organic N	Yield	Soil Organic N	Stream (10-yr total)	Buffer Strip
H1	Contin. Corn	None	Tilled	8000	31	502	5820	72	0
	Contin. Corn	270 in spring	Tilled	8096	232	1519	6611	458	0

    H2: Planting perennial Alfalfa increases Soil Organic N stocks.
       Results:

	Parameter Settings			Final N Stocks (All in kg/ha)					
	Cropping system	Fertilizer	Manage-ment	Atmo-sphere	Soil In-organic N	Yield	Soil Organic N	Stream (10-yr total)	Buffer Strip
H2	Contin. Corn	None	Tilled	8000	31	502	5820	72	0
	Alfalfa	None	Tilled	4127	221	1775	7821	138	0

    H3: Planting a corn-soybean rotation (N fertilizer = 180 in spring) with management of 'Cover Crop' reduces N stocks in 'N Stream.' What is the significance of this?
       Results:

	Parameter Settings			Final N Stocks after soybean (All in kg/ha)					
	Cropping system	Fertilizer	Manage-ment	Atmo-sphere	Soil In-organic N	Yield	Soil Organic N	Stream (10-yr total)	Buffer Strip
H3	Corn-soy	180 in spring	Tilled	8008	298	1255	5329	280	0
	Corn-soy	180 in spring	Cover crop	7361	128	1131	5544	210	0

Table S1. Monthly precipitation and temperature data for Central Iowa, 1992-2012.

Month	Precipitation			Maximum Air Temperature			Minimum Air Temperature			Mean Air temperature		
	cm			°C			°C			°C		
	Mean	SD	Skew-ness	Mean	SD	Skew-ness	Mean	SD	Skew-ness	Mean	SD	Skew-ness
Jan	1.94	0.94	0.82	-1.83	3.71	0.74	-11.24	3.22	0.61	-6.52	3.35	0.71
Feb	2.57	1.38	-0.05	0.87	3.62	-0.22	-8.44	3.60	0.23	-3.77	3.46	-0.03
Mar	5.14	2.94	0.00	8.76	3.30	0.65	-2.22	2.54	0.51	3.26	2.81	1.10
Apr	9.94	4.06	0.48	16.80	2.34	-0.01	3.84	1.77	0.12	10.35	1.93	0.13
May	12.23	5.55	0.13	22.49	1.88	0.48	10.13	1.45	-0.18	16.34	1.62	0.40
Jun	12.67	7.77	0.80	27.06	1.22	-0.16	15.63	0.95	-0.11	21.36	1.00	0.02
Jul	12.93	8.80	1.99	28.86	1.88	-0.07	17.86	1.48	-0.26	23.37	1.60	-0.06
Aug	12.07	7.32	0.81	27.65	1.51	-0.27	16.40	1.62	-0.12	22.14	1.45	-0.44
Sep	8.00	4.74	0.85	24.60	2.07	-0.21	11.22	1.70	-0.22	18.01	1.63	0.03
Oct	6.08	4.51	1.15	17.80	2.16	-0.94	5.11	1.51	0.36	11.58	1.56	-0.83
Nov	5.09	3.19	0.74	8.81	3.48	-0.11	-1.72	2.26	0.26	3.61	2.81	0.11
Dec	2.75	1.80	0.59	0.56	3.50	-0.62	-8.49	3.04	-1.16	-3.91	3.20	-0.99

Data are from IEM Climodat http://mesonet.agron.iastate.edu/climodat/.
# Site Information: [IA0200] AMES-8-WSW.
SD = Standard deviation.

Table S2. Crop planting and harvest schedules for *N Model in Iowa Agricultural Systems* at monthly time steps for 10 years.

Month	Time	c corn	corn ph	corn soy	corn soy ph	corn soy cover	corn soy cover ph	alfalfa	alfalfa ph
Jan	1	0	0	0	0	0	0	0	0
Feb	2	0	0	0	0	0	0	0	0
Mar	3	0	0	0	0	0	0	0	0
Apr	4	1	0	1	0	1	0	3	0
May	5	1	0	1	0	1	0	3	0
Jun	6	1	0	1	0	1	0	3	0
Jul	7	1	0	1	0	1	0	3	0
Aug	8	1	0	1	0	1	0	3	0
Sep	9	1	0.6	0	0.6	0	0.55	3	0.5
Oct	10	0	0	0	0	4	0	3	0
Nov	11	0	0	0	0	4	0	3	0
Dec	12	0	0	0	0	4	0	3	0
Jan	1	0	0	0	0	0	0	0	0
Jan	13	0	0	0	0	4	0	3	0
Feb	14	0	0	0	0	4	0	3	0
Mar	15	0	0	0	0	4	0	3	0
Apr	16	1	0	0	0	4	0	3	0
May	17	1	0	2	0	2	0	3	0.5
Jun	18	1	0	2	0	2	0	3	0
Jul	19	1	0	2	0	2	0	3	0
Aug	20	1	0	2	0	2	0	3	0
Sep	21	0	0.6	2	0	2	0	3	0.5
Oct	22	0	0	0	0.37	0	0.37	3	0
Nov	23	0	0	0	0	4	0	3	0
Dec	24	0	0	0	0	4	0	3	0
Jan	25	0	0	0	0	4	0	3	0
Feb	26	0	0	0	0	4	0	3	0
Mar	27	0	0	0	0	4	0	3	0
Apr	28	1	0	1	0	1	0	3	0
May	29	1	0	1	0	1	0	3	0.5
Jun	30	1	0	1	0	1	0	3	0
Jul	31	1	0	1	0	1	0	3	0
Aug	32	1	0	1	0	1	0	3	0
Sep	33	0	0.6	0	0.6	0	0.55	3	0.5
Oct	34	0	0	0	0	4	0	3	0
Nov	35	0	0	0	0	4	0	3	0
Dec	36	0	0	0	0	4	0	3	0
Jan	37	0	0	0	0	4	0	3	0

Month	#	C1	C2	C3	C4	C5	C6	C7	C8
Feb	38	0	0	0	0	4	0	3	0
Mar	39	0	0	0	0	4	0	3	0
Apr	40	1	0	0	0	4	0	3	0
May	41	1	0	2	0	2	0	3	0.5
Jun	42	1	0	2	0	2	0	3	0
Jul	43	1	0	2	0	2	0	3	0
Aug	44	1	0	2	0	2	0	3	0
Sep	45	0	0.6	2	0	2	0	3	0.5
Oct	46	0	0	0	0.37	0	0.37	3	0
Nov	47	0	0	0	0	4	0	3	0
Dec	48	0	0	0	0	4	0	3	0
Jan	49	0	0	0	0	4	0	3	0
Feb	50	0	0	0	0	4	0	3	0
Mar	51	0	0	0	0	4	0	3	0
Apr	52	1	0	1	0	1	0	3	0
May	53	1	0	1	0	1	0	3	0.5
Jun	54	1	0	1	0	1	0	3	0
Jul	55	1	0	1	0	1	0	3	0
Aug	56	1	0	1	0	1	0	3	0
Sep	57	0	0.6	0	0.6	0	0.55	3	0.5
Oct	58	0	0	0	0	4	0	3	0
Nov	59	0	0	0	0	4	0	3	0
Dec	60	0	0	0	0	4	0	3	0
Jan	61	0	0	0	0	4	0	3	0
Feb	62	0	0	0	0	4	0	3	0
Mar	63	0	0	0	0	4	0	3	0
Apr	64	1	0	0	0	4	0	3	0
May	65	1	0	2	0	2	0	3	0.5
Jun	66	1	0	2	0	2	0	3	0
Jul	67	1	0	2	0	2	0	3	0
Aug	68	1	0	2	0	2	0	3	0
Sep	69	0	0.6	2	0	2	0	3	0.5
Oct	70	0	0	0	0.37	0	0.37	3	0
Nov	71	0	0	0	0	4	0	3	0
Dec	72	0	0	0	0	4	0	3	0
Jan	73	0	0	0	0	4	0	3	0
Feb	74	0	0	0	0	4	0	3	0
Mar	75	0	0	0	0	4	0	3	0
Apr	76	1	0	1	0	1	0	3	0
May	77	1	0	1	0	1	0	3	0.5
Jun	78	1	0	1	0	1	0	3	0
Jul	79	1	0	1	0	1	0	3	0
Aug	80	1	0	1	0	1	0	3	0
Sep	81	0	0.6	0	0.6	0	0.55	3	0.5
Oct	82	0	0	0	0	4	0	3	0
Nov	83	0	0	0	0	4	0	3	0

Dec	84	0	0	0	0	4	0	3	0
Jan	85	0	0	0	0	4	0	3	0
Feb	86	0	0	0	0	4	0	3	0
Mar	87	0	0	0	0	4	0	3	0
Apr	88	1	0	0	0	4	0	3	0
May	89	1	0	2	0	2	0	3	0.5
Jun	90	1	0	2	0	2	0	3	0
Jul	91	1	0	2	0	2	0	3	0
Aug	92	1	0	2	0	2	0	3	0
Sep	93	0	0.6	2	0	2	0	3	0.5
Oct	94	0	0	0	0.37	0	0.37	3	0
Nov	95	0	0	0	0	4	0	3	0
Dec	96	0	0	0	0	4	0	3	0
Jan	97	0	0	0	0	4	0	3	0
Feb	98	0	0	0	0	4	0	3	0
Mar	99	0	0	0	0	4	0	3	0
Apr	100	1	0	1	0	1	0	3	0
May	101	1	0	1	0	1	0	3	0.5
Jun	102	1	0	1	0	1	0	3	0
Jul	103	1	0	1	0	1	0	3	0
Aug	104	1	0	1	0	1	0	3	0
Sep	105	0	0.6	0	0.6	0	0.55	3	0.5
Oct	106	0	0	0	0	4	0	3	0
Nov	107	0	0	0	0	4	0	3	0
Dec	108	0	0	0	0	4	0	3	0
Jan	109	0	0	0	0	4	0	3	0
Feb	110	0	0	0	0	4	0	3	0
Mar	111	0	0	0	0	4	0	3	0
Apr	112	1	0	0	0	4	0	3	0
May	113	1	0	2	0	2	0	3	0.5
Jun	114	1	0	2	0	2	0	3	0
Jul	115	1	0	2	0	2	0	3	0
Aug	116	1	0	2	0	2	0	3	0
Sep	117	0	0.6	2	0	2	0	3	0.5
Oct	118	0	0	0	0.37	0	0.37	3	0
Nov	119	0	0	0	0	4	0	3	0
Dec	120	0	0	0	0	4	0	3	0

Table S3. Crop biomass by month for *N Model in Iowa Agricultural Systems*.

Crop*	CC	CS	CS	CS	SC	SC	SC	SC	CS	CS	CS	SC	SC	SC	Alfalfa	Cover
N Fertilizer**	All	0	90	180, 270	0	90	180	270	90	180	270	90	180	270	0	0
Cover crop	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Month																
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3
April	0.4	0.2	0.4	0.7	0	0	0	0	0.3	0.9	0.9	0	0	0	0.5	0.3
May	0.8	0.4	0.5	0.8	0.3	0.4	0.3	0.3	0.4	0.9	0.9	0.2	0.2	0.2	0.6	0.3
June	0.9	0.35	0.5	0.9	0.4	0.4	0.4	0.35	0.4	0.9	0.9	0.2	0.3	0.2	0.9	0.3
July	0.9	0.3	0.4	0.8	0.5	0.5	0.4	0.4	0.35	0.9	0.9	0.3	0.4	0.3	0.9	0.3
Aug	0.9	0.25	0.4	0.7	0.5	0.4	0.28	0.28	0.3	0.8	0.9	0.3	0.4	0.3	0.4	0.3
Sept	0	0	0	0	0.3	0.4	0.2	0.2	0	0	0	0.25	0.3	0.3	0	0.3
Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.3
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.3
Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3

*Crop codes: CC = continuous corn; **C**S = Corn in a corn-soybean rotation; **S**C = soybean in a corn-soybean rotation.
** N fertilizer is added annually only to corn; units are kg/ha.

Table S4. N fixation factors for *N Model in Iowa Agricultural Systems*. Soybean is grown in an annual rotation with corn. Annual N fertilizer (kg/ha) is added only in the corn phase of the rotation.

Crop	Soybean								Alfalfa
N fertilizer	0	90	180	270	0	90	180	270	0
Cover Crop	0	0	0	0	+	+	+	+	0
Month									
Jan	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	30
Apr	0	0	0	0	0	0	0	0	40
May	50	25	10	2	60	50	30	30	50
Jun	50	30	20	2	60	50	30	30	50
Jul	50	40	25	2	60	50	40	30	100
Aug	50	40	20	2	60	40	30	40	75
Sep	50	30	10	0	60	40	30	30	50
Oct	0	0	0	0	0	0	0	0	50
Nov	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0

Table S5. Soil moisture parameters for water submodel in *N Model in Iowa Agricultural Systems*.

Parameter	Water mm/30 cm soil
Saturation	152.5
Field Capacity	110.0
Permanent Wilting Point	65.0
Oven Dry	0.0
Gravitational	42.5
Water-holding Capacity	45.0
Plant Available	22.5
Unavailable	65.0

Data are for a silty clay loam, from:
https://passel.unl.edu/pages/informationmodule.php?idinformationmodule=1130447039&topicorder=10&maxto=10

Table S6. Values for management factors used in the *N Model in Iowa Agricultural Systems*.

Month	Management Factors				
	Tilled	No-till (NT)	Cover Crop (CC)	Buffer Strip (BS)	NT+CC+BS
Jan	1	1	1	1	1
Feb	1	1	1	1	1
Mar	1	1	1.1	1	1.1
Apr	1	1.05	1.2	1	1.2
May	1	1.05	1.2	1	1.2
Jun	1	1.05	1.2	1	1.2
Jul	1	1.05	1.2	1	1.2
Aug	1	1.05	1.2	1	1.2
Sep	1	1.05	1.2	1	1.2
Oct	1	1	1.2	1	1.2
Nov	1	1	1.1	1	1.1
Dec	1	1	1	1	1

Table S7. Values for stream factors used in the *N Model in Iowa Agricultural Systems*.

Month	Stream factors				
	Tilled	No-till (NT)	Cover Crop (CC)	Buffer Strip (BS)	NT+CC+BS
Jan	1	0.9	0.8	1	0.8
Feb	1	0.9	0.8	1	0.8
Mar	1	0.9	0.6	1	0.6
Apr	1	1	0.5	1	0.7
May	1	1	0.5	1	0.8
Jun	1	1	1	1	0.9
Jul	1	1	1	1	0.8
Aug	1	1	1	1	0.8
Sep	1	1	1	1	0.8
Oct	1	0.9	0.8	1	0.8
Nov	1	0.9	0.8	1	0.8
Dec	1	0.9	0.8	1	0.8

Table S8. Process parameters for *N Model in Iowa Agricultural Systems.*

Cropping system:*	CC	CC	CC	CC	CS	CS	CS	CS	CS	CS	CS	CS	Alfalfa
N Fertilizer:**	0	90	180	270	0	90	180	270	0	90	180	270	0
Cover Crop:	Y or N	Y or N	Y or N	Y or N	No	No	No	No	Yes	Yes	Yes	Yes	No
Function Factor													
Immobilization	0.14	0.14	0.14	0.14	0.16	0.16	0.16	0.18	0.2	0.152	0.13	0.1	0.2
Mineralization	0.005	0.0068	0.0095	0.0095	0.0083	0.0115	0.02	0.023	0.008	0.014	0.016	0.0163	0.0055
Denitrification	0.00005	0.00005	0.01	0.02	0.0005	0.01	0.07	0.07	0.0005	0.0005	0.0005	0.0005	0.0005
N Stream Flow	0.08	0.08	0.07	0.07	0.06	0.06	0.04	0.045	0.06	0.06	0.06	0.065	0.04
N Buffer Strip	0.1	0.1	0.15	0.22	0.1	0.1	0.25	0.22	0.1	0.22	0.2	0.18	0.1

*Cropping system codes: CC = continuous corn; CS = Corn-soybean rotation.
** N fertilizer is added annually only to corn; units are kg/ha.