

Table 3. Parameters, values and origin for economic analysis conducted using Dr. Jones yield, protein and net revenue model

Parameter	Value	Where obtained
broadcast urea fertilizer N loss,% [†]	18	average from 2008-2014 trials
% fertilizer N in Montana broadcast applied as urea in 2011	48	Pre-survey
% growers now considering timing urea applications according to weather b/c of study	22	Post-survey
% growers using enhanced products like Agrotain in 2014	16	Post-survey
% growers subsurface banding in 2014	16	Post-survey
% reduction in N loss by considering timing urea application according to weather	50	Study estimate
% reduction in N loss by using Agrotain	65	Study
% reduction in N loss by subsurface banding	100	Estimate from literature
mean N application rate, lbs N/acre	60	Survey, MDA 2012 (~300 million lb N as urea), and NASS
available N [‡] :spring wheat yield ratio, lbs N/bu	2.59	Pre-survey
available N:winter wheat yield ratio, lbs N/bu	2.33	Pre-survey
spring wheat acres (2013)	2.5 million	NASS
winter wheat acres (2013)	2.0 million	NASS
soil organic matter (affects N response),%	2.0	Estimate from variety of soil tests
spring wheat price for 14% protein (7/2014),	\$6.00/bu	USDA Montana
winter wheat prices for 12.5% protein (7/2014)	\$5.25/bu	USDA Montana
spring wheat discount below 14% (per quarter)	\$0.15/bu	USDA Montana
winter wheat premium above 12.5% (per quar.)	\$0.01/bu	USDA Montana
spring wheat yield goal	40 bu/ac	Somewhat higher than non-irrigated actual yield from NASS 2013 (35.6 bu/ac)
winter wheat yield goal	50 bu/ac	Somewhat higher than non-irrigated actual yield from NASS 2013 (42.2 bu/ac)
Fertilizer cost	\$0.55/lb N	Estimate from retailers & growers

[†] We assumed a baseline NH₃ loss of 18% of the application rate for broadcast urea without consideration for practices that result in mitigation. This number comes from the combined results from this study (2010-2014), plus studies that pre-date this project (2008-2010).

[‡] available N = soil N + fertilizer N