Table 2. Added costs and breakeven winter wheat (WW) yield increases of selected practices to manage high aluminum, 2015

Practice	Added cost ($/ac/yr)	Breakeven WW yield increase (bu/ac/yr)
#0. Benchmark: Do nothing	0.00	0.00
#1. Cultivate every fourth year w/o lime	5.13	0.84
#2. Cultivate twice every fourth year w/o lime	10.27	1.69
#3. Broadcast 0.5 t/ac/yr lime & incorporate with cultivator	71.85	11.82
#4. Broadcast 0.5 t/ac/yr lime & incorporate with subsoiler	91.27	15.01
#5. Incorporate 0.5 t/ac/yr lime with w/ fertilizer applicator	52.00	8.55
#6. Apply 0.5 t/ac/yr lime, seed & fertilizer w/ no-till drill	52.00	8.55
#7. Incorporate 0.5 t/ac/yr lime w/ spoke-wheel applicator	91.27	15.01
#8. Adding $30/ac/yr micro- nutrients w/one cultivation/yr w/o lime	50.54	8.31
#9. Harrowing & mowing stubble each year with one cultivation w/o lime	34.69	5.71
#10.Subsoiler 10 to 12 in depth every fourth year w/o lime	9.99	1.64

Notes: All costs are on annual basis. For example, cost of practices implemented every fourth year are divided by four.
The only added cost reported for practices #5 and #6 is the cost of lime and of adding it to the implement ($10/ac)
because fertilizer application and direct seeding would be done as part of standard operations.
Added costs are based on P. Patterson and K. Painter. Custom Rates for Idaho Agricultural Operations 2010-2011, Bul. 729,
U. Idaho Extension, 2011. Use of custom rates calibrates the quantity and type of machinery services exactly to the specified practices.
All costs are updated to 2015 using USDA/National Ag. Statistics Service, Quick Stats. Index for Prices Paid Ag Services
Custom Rates and Index for Prices Paid for Crop Sector Production Inputs. Price of flour lime delivered to
Pullman WA = $84/ton. SOURCE: Mike Harford, J.A. Jack & Sons, personal communication, 12/10/2015.
Breakeven yield increase = Added cost/farm gate price soft white wheat
Farm gate Psww = Average 2010, 2014 marketing year prices in Portland - $0.81/bu transportation equals $6.08/bu