

**Table 11** Alternative summer fallow replacement treatment means for soil NO<sub>3</sub>-N (mg kg<sup>-1</sup>) and potentially mineralizable nitrogen (PMN) post harvest and wheat seeding for specified soil depths at two sites in north-central Montana.

Sampling Depth	Control, <i>Alternative Treatment</i>	Site†	
		Box Elder	Sunburst
NO <sub>3</sub> -N at harvest			
0-0.3 m			
	LGM	6 a*	NA‡ –
	<i>Hayed</i>	7 a	NA –
	Grazed Fallow	NA –	nd‡ –
	<i>Grazed LGM</i>	NA –	nd –
	Fallow	NA –	30 a
	<i>Seed Peas</i>	NA –	5 b
0.3-0.6 m			
	LGM	3 a	NA –
	<i>Hayed</i>	2 a	NA –
	Grazed Fallow	NA –	nd –
	<i>Grazed LGM</i>	NA –	nd –
	Fallow	NA –	19 a
	<i>Seed Peas</i>	NA –	5 b
0.6-0.9 m			
	LGM	13 a	NA –
	<i>Hayed</i>	5 a	NA –
	Grazed Fallow	NA –	nd –
	<i>Grazed LGM</i>	NA –	nd –
	Fallow	NA –	29 a
	<i>Seed Peas</i>	NA –	8 b
NO <sub>3</sub> -N at wheat seeding†			
0-0.3 m			
	LGM	15.15 a	NA –
	<i>Hayed</i>	11.99 a	NA –
	Grazed Fallow	NA –	55.00 a
	<i>Grazed LGM</i>	NA –	17.00 b
	Fallow	NA –	42.93 a
	<i>Seed Peas</i>	NA –	11.38 b
0.3-0.6 m			
	LGM	5 a	NA –
	<i>Hayed</i>	3 a	NA –
	Grazed Fallow	NA –	37 a
	<i>Grazed LGM</i>	NA –	15 b
	Fallow	NA –	24 a
	<i>Seed Peas</i>	NA –	12 a
0.6-0.9 m			
	LGM	18 a	NA –
	<i>Hayed</i>	6 a	NA –
	Grazed Fallow	NA –	18 a
	<i>Grazed LGM</i>	NA –	11 a
	Fallow	NA –	28 a
	<i>Seed Peas</i>	NA –	16 a
PMN at wheat seeding			
0-0.3 m			
	LGM	12.66 a	NA –
	<i>Hayed</i>	14.72 a	NA –
	Grazed Fallow	NA –	19.03 a
	<i>Grazed LGM</i>	NA –	28.13 a
	Fallow	NA –	43.12 a
	<i>Seed Peas</i>	NA –	41.40 a

\* Differences determined by paired t-tests considered significant at  $P \leq 0.10$ . Treatment means followed by the same letter do not significantly differ.

† Box Elder sampled Sept 2009, Sunburst sampled April 2010, in accordance with producer's decision to plant winter or spring wheat.

‡ NA = Not applicable (treatment not present at site), nd = not determined.