

## Defining barley and oat forage production in western North Dakota Year 2 Summary

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The objective of this study was to characterize small grain forage production in western North Dakota at the producer level. Forage samples (n=189) were collected from 15 different counties in the fall of 2002 and the fall of 2003. Producers submitting samples for nutrient analysis were asked to complete a questionnaire regarding production characteristics of each sample. Samples were analyzed for concentrations of crude protein (CP) and acid (ADF) and neutral (NDF) detergent fiber. Total digestible nutrient concentration (TDN) and relative feed value (RFV) were calculated using standard methodologies. Fifty-seven samples were identified as small grain samples (23 barley [*Hordeum vulgare*] and 34 oat [*Avena sativa*]). In general, producers of small grain forage used fertilization (89%), a swather to cut forage (94%) and a round baler to harvest forage (89%). Only a small proportion of producers used either weed (38%) or pest (0%) control in small grain forage production. Cutting time was most commonly described as all day (48%) followed by afternoon (25%). In general, small grain forage was harvested at a soft dough stage of development (35%). However, a greater proportion of barley forage was harvested at a more advanced stage of development (greater than soft dough) compared to oat (39 vs 23%). Dry matter yield (1.46 vs 1.37 ton/ac; P=.62) and CP concentration (12.0 vs 10.9%; P=.22) did not differ between barley and oat forage. Concentrations of ADF (32.7 vs 36.0%; P<.01) and NDF (51.7 vs 57.1%; P<.01) were lower in barley than in oat forage. Furthermore, TDN concentration (64.2 vs 60.9%; P<.01) and RFV (116.5 vs 100.0%; P<.01) were greater in barley than in oat forage. In summary, production characteristics of small grain forage were similar between barley and oat. Dry matter yield did not differ between types of small grain forage. However, differences in fiber and energy concentrations would indicate that barley forage is of higher quality than oat forage.