## NORTH DAKOTA– Full-Season Cover Crop Mixtures

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Full-season cover crop mixtures for grazing are becoming more common. What mixtures and how many times they can be grazed in a season remain unknown. Farmers try different cover crop mixtures to get the most forage with adequate quality. A preliminary replicated experiment was designed to evaluate forage yield, regrowth, and quality of seven cover crop mixtures in Fargo, ND (Table 1). Highest forage yield was observed in mixtures containing forage sorghum cut once at season's end. Forage sorghum-based mixtures in a two-cut system had less yield but allowed other mixture crops to survive increasing crude protein (CP). Mixture 3, which was forage sorghum cut at 4', had a CP of 16% at season's end. The forage brassica mixture had the highest CP at 23% (M2). Conversely, forage sorghum-based mixtures cut only at season's end outcompeted all other species. CP was lowest in mixtures with sorghum harvested once at season's end. Forage sorghum seeding rate in mixtures M3, M4, and M5 was 3 lbs/ac and in M6 was 5 lbs/ac. Forage sorghum is a very competitive crop, thus, to increase survival and growth of other mixture species, the seeding rate should be decreased to 1 lb/ac. In order to keep mixture diversity and high yield and quality forage, forage sorghum seeding rate must be reduced and forages must be cut at least twice to allow all mixture species to grow.

**Table 1.** M1 planted 5/2/18, M2 planted 7/9/18, M3-7 planted 5/23/18.

| Mixture/ system | Total forage yield (DM) tons/ac | Proportion of species in mixture (DM) | CP % |
|---|---|---|---|
| M1: Annual ryegrass (Crusader), chicory (Choice), plantain (Tonic) 2- cut system | 2.03 | 81%, 7%, 12% | 15 |
| M2: Hybrid brassica (Winfred), turnip (New York) 1-cut system | 0.61 | - | 23 |
| M3: Hybrid brassica, oat, forage pea, forage sorghum blend, foxtail millet 2-cut system | 6.79 | 3%, 22%, 4%, 59%, 12% | 16 |
| M4: Turnip, forage sorghum blend, forage pea, Hybrid brassica, oat, faba bean, forage pearl millet 1-cut system | 6.66 | 99% sorghum | 5.4 |
| M5: Forage sorghum blend, foxtail millet, Flax, buckwheat, oat, phacelia, forage pea, faba bean | 3.67 | 99% sorghum | 6.8 |
| M6: Forage sorghum blend | 7.44 | 99% sorghum | 5.3 |
| M7: Forage pearl millet | 5.25 | - | 7.6 |