

Forage Extension Program

Forage Species in Montana

Range, pasture and forages comprise over two-thirds of Montana's 93 million acres. Forages are the cornerstone of Montana's agriculture economy; harvested forages alone are valued at over \$300 million annually. To be economically successful, ranchers must adapt their resources to develop a well-balanced, year-round forage plan that satisfies livestock nutrient requirements, while at the same time sustains the forage base. For most ranchers, winter feed is the single most costly expense. For this reason, slight improvements in forage production can contribute significantly to ranch profitability.

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There are over 80 different species potentially used for forage in Montana and the northern Great Plains. These include species on native rangeland, improved seeded pastures, perennial hay crops, annual forages and crop aftermath. Renovation or establishment of new forage seedings are good investments, but can be very expensive and time-consuming. For satisfactory returns on investment, seeded species should be chosen carefully for adaptation, they must fit specific needs, and they must be properly established and managed.

Several considerations prior to planting forages:

- 1. Seeding objectives - when and how much forage is needed?** Calculate your monthly forage and feed supply under present management, and compare it with monthly feed demands (account for all livestock and all feeds). Next, determine if total forage production needs to be increased, or if timing needs to be re-allocated (for example less hay but more high-quality fall pasture, or early pasture to defer grazing of native grass). Analyze any future potential changes to livestock management, such as increasing herd size or backgrounding opportunities. Evaluate machinery and human resources (will increased hay production require additional or replacement equipment, or are you committed to a more intensive grazing management strategy?). Last, determine the desired longevity of a forage planting.
- 2. Site characteristics - what will grow best?** Consider all the soil attributes - texture, fertility, depth, slope, stoniness, salinity, pH, alkalinity, and erosiveness. How long is the growing season, and what is the total and seasonal distribution of precipitation? Do the topography and soil depth allow for cultivation and planting with a drill? Where is the water table - are there run-in sites to promote forage production (or conversely, can the site be irrigated properly)? Is the site accessible

to livestock when forage is needed (also consider access for haying equipment or to livestock water). What is the existing vegetation - are invasive or noxious weeds present?

- 3. Profitability analysis - what will this cost, and how much will it return?** First, review the objectives above, and estimate realistic economic benefits for a new forage seeding. Will livestock production be increased or made more efficient? Are purchased feed supplements or hay reduced? Does the forage seeding reduce your reliance on unpredictable forage sources (for example public lands or private leases)? Are there other tangible benefits, such as improved watershed function, or enhancement for wildlife? On the cost side, estimate all planting, establishment and maintenance costs. These include the costs for seedbed preparation, seed, planting, and costs for a deferment period until the new seeding is productive. Are there additional machinery needs, or construction and maintenance costs for additional water or fencing? Is there a cost associated with implementing a higher management level to optimize forage production and lengthen the stand life? Last, analyze the cost:benefit ratio. Make adjustments to your plan to make the new forage seeding profitable over its desired longevity.

4. Species selection

Grasses

Legumes

Shrubs or Browse