



# Cattle Producer's Handbook

Range and Pasture Section

505

## Grass Growth and Development Considerations for Grazing Management

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In the livestock business, as in many businesses, producers rely on conversion of raw materials into a saleable product, or in this case, using vegetation to produce meat. With this in mind, it is important for cattle producers to approach grazing management as a business that strives to maximize the efficiency of that raw material conversion. Producers must have a complete understanding of the source of raw material and how to sustain it for maximum profitability in both short and long terms.

For grazing management, this means understanding plant growth, survival, and production and how these factors interact with livestock grazing for different forages on a rancher's rangeland. This fact sheet reviews the basics of plant morphology (structure) and identification, plant growth and development, plant response to grazing, and how these tools can be used in a grazing system.

### Plant Morphology and Identification

Identification of range plants common to a producer's area is important to help recognize conditions and trends on rangeland. Start by identifying the differences between plants in a species group (e.g., grass, grasslike, forb, shrub, and half-shrub).

**Grasses** are characterized by hollow jointed stems. Leaves occur in two rows on opposite sides of the stem and have parallel veins.

**Grasslike** plants include sedges and rushes, commonly known as wiregrass and tulees. They look like grasses, and may be misidentified as grass, but there are some distinct differences. Grasslike plants (with only a few exceptions) have solid stems that are either triangular or round in cross section and have no joints. Like grasses, veins of leaves are parallel but occur in three rows on the stem.

**Forbs** are non-grass plants with annual stems (tops). The leaves are usually broad with netlike veins. Examples of forbs are "herbs" and "wildflowers," such as yarrow, phlox, larkspur, and Indian paintbrush.

**Shrubs** are woody plants with buds and stems that live over the winter above the ground and branch from near the base. Examples are big sagebrush, rabbitbrush, and bitterbrush.

**Half-shrubs** are perennial plants that die back each winter, not to the ground line, but to a perennial woody base or a bare ground stem. An example of a half-shrub is winterfat.

### Lifespan and Root System

Plants can also be classified based on their lifespan and type of root system. The lifespan of plants can be categorized as annual, biennial, or perennial.

**Annual plants** live only one season, and reproduce only by seeds.

**Biennial plants** live 2 years and reproduce by seed the second year. Normally biennial plants form a low growing rosette the first year, then "bolt," or put up a seedhead or flower the second year. There are few biennial grasses.

**Perennial** plants live over from year to year, producing leaves and stems for multiple years from the same crown. They reproduce by seeds, stems, bulbs, underground rootstocks, and rhizomes. Perennials can be both short-lived (3 to 5 years) and long-lived (6+ years).

Growth characteristics of plants are also related to the type of root system and above-ground stem and leaf structure they possess. Often times, biennial plants are characterized by taproots (*primary root growing directly downward and giving rise to smaller lateral branches*). Perennial grasses, on the other hand, are

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