# Plant Species Provide Key to Range Management Success

by Alexandra Fraser and Kelly Kindscher

Many of Kansas' most scenic areas of native prairie are cattle ranches and farms. Ranchers and native pasture managers must manage their land with the bottom line in mind, but proper range management also provides opportunities for land stewardship, increasing long-term sustainability, and preserving natural heritage. Among the variety of grazing techniques that exist, stocking rate and grazing intensity are the primary factors influencing the abundance of native species, which also indicates range condition.

Ranchers and native grassland managers can learn an important subset of native prairie plant species for use as a tool with which to measure both short and long term management effects. Certain prairie species are more palatable to cattle, and these species decline in abundance and size under grazing pressure. These are commonly referred to as *decreaser* species. Conversely, certain species are not palatable to cattle, and the quantity of these *increaser* species expands under intense grazing pressure. Knowledge of these species allows the rancher or native pasture manager to assess condition and management practices. (See Table 1 on page 7.)

Range condition has long been documented by changes in species composition. John Weaver, the pre-eminent prairie ecologist from the University of Nebraska, observed that different species responded differently to grazing, and invented the terms "increaser and decreaser" based on this observation. He and other classic range scientists and ecologists expanded on this important concept and created lists of increaser and decreaser species. The Table 1 list was compiled from these studies.

In recent decades, use of the terms "increaser and decreaser" declined among range scientists. The concept became strongly associated with Soil Conservation Service range condition descriptions, which are sometimes considered outdated. The terms are also rather general because a species may increase in one situation and decrease in another. Rainfall, soil type, slope aspect and grazing intensity, will cause a species to increase or decrease differently, but these trends are not well documented.

**"The increaser/ decreaser concept may be especially meaningful when applied to rotational grazing."**

But despite declining popularity, the increaser and decreaser species concept is still useful for allowing the farmer or rancher to observe both positive and negative effects of the grazing system.

For example, the increaser/ decreaser concept may be especially meaningful when applied to rotational grazing. Short duration rotational grazing has gained popularity in recent years, partially due to the holistic resource management philosophy of Allen Savory. Many studies in range literature suggest that range condition will improve under short duration rotational grazing because it allows more recovery time for grassland species, and more closely approximately the grazing of native animals.

A simple analogy explains this concept. If a single cow walks to the creek each day for a year it will certainly make a trail, but a herd of 365 cattle walking to the creek on a single day will not make a trail. Observational data suggest that certain desirable species may increase under rotational grazing. Ranchers and managers who know these species can observe these changes firsthand and determine if short duration rotational grazing works for them.

Ranchers should become familiar with and monitor decreaser species in their rangeland and pastures. These species indicate good species diversity, and a decline may indicate that grazing intensity is too high. Increaser species should also be observed for changes in abundance, since a decline indicates improved management strategies. This contributes not only to long-term sustainability, but also provides short-term monitoring of the grazing system.

The rancher or manager who knows the location of key increaser and decreaser species and is sensitive to their changes in abundance is closer to understanding the ecology of the land.

There are many benefits of managing for increased cover of decreaser species. The improved grasses and forbs will prevent erosion and reduce run-off. Increased abundance of palatable decreaser species, especially legumes, will improve the nutritional value of the forage. These and other advantages will lead to increased yield and profit. and allow for sustainable land use.

Furthermore, such practices maintain a diverse plant community including rare species and wildflowers, which provide potential habitat for wildlife. Management for greater cover by conservative prairie plant species would allow native pasture managers to take pride in their high quality pasture, to practice sustainable economics and to make a valuable contribution to our native prairie natural heritage.#

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# Resources

**Table 1. Selected Prairie Plant Increaser and Decreaser Species**

| Scientific Name* | | Common Name | Classification |
|---|---|---|---|
| Amorpha | canescens | Lead Plant | Decreaser |
| Andropogon | gerardii | Big Bluestem | Decreaser |
| Aster | praealtus | Common Willow Leaved Aster | Decreaser |
| Aster | sericeus | Silky Aster | Decreaser |
| Astragalus | crassicarpus | Ground Plum Milk Vetch | Decreaser |
| Ceanothus | herbaceous | New Jersey Tea | Decreaser |
| Comandra | umbellata | Bastard Toadflax | Decreaser |
| Coreopsis | palmata | Finger Coreopsis | Decreaser |
| Dalea | candida | White Prairie Clover | Decreaser |
| Dalea | purpurea | Purple Prairie Clover | Decreaser |
| Desmodium | illinoense | Illinois Tickleclover | Decreaser |
| Echinacea | pallida | Pale Purple Coneflower | Decreaser |
| Elymus | canadensis | Canada Wildrye | Decreaser |
| Euphorbia | corollata | Flowering Spurge | Decreaser |
| Fragaria | virginiana | Wild Strawberry | Decreaser |
| Helianthus | grosseserratus | Sawtooth sunflower | Decreaser |
| Helianthus | rigidus | Stiff Sunflower | Decreaser |
| Helianthus | tuberosus | Jerusalem Artichoke | Decreaser |
| Heliopsis | helianthoides | Rough Ox-Eye | Decreaser |
| Hypoxis | hirsuta | Yellow Star Grass | Decreaser |
| Lobelia | spicata | Palespike Lobelia | Decreaser |
| Panicum | virgatum | Switchgrass | Decreaser |
| Phlox | pilosa | Prairie Phlox | Decreaser |
| Psoralea | esculenta | Prairie Turnip | Decreaser |
| Psoralea | tenuiflora | Many-Flowered Scurfpea | Decreaser |
| Rosa | arkansana | Wild Rose | Decreaser |
| Sisyrinchium | campestre | Blue-Eyed Grass | Decreaser |
| Sporobolus | heterolepis | Prairie Dropseed | Decreaser |
| Stipa | spartea | Porcupinegrass | Decreaser |
| Viola | pedatifida | Prairie Violet | Decreaser |
| Achillea | millefolium | Yarrow | Increaser |
| Agropyron | smithii | Western Wheatgrass | Increaser |
| Agrostis | hyemalis | Winter Bentgrass | Increaser |
| Ambrosia | artemisiifolia | Common Ragweed | Increaser |
| Antennaria | neglecta | Field Pussytoes | Increaser |
| Artemisia | ludoviciana | White Sage | Increaser |
| Asclepias | verticillata | Whorled Milkweed | Increaser |
| Aster | ericoides | Heath Aster | Increaser |
| Baptisia | bracteata | Plains Wild Indigo | Increaser |
| Buchloe | dactyloides | Buffalograss | Increaser |
| Eragrostis | spectabilis | Purple Lovegrass | Increaser |
| Erigeron | strigosus | Daisy Fleabane | Increaser |
| Euthamia | graminifolia | Euthamia | Increaser |
| Physalis | heterophylla | Clammy Groundcherry | Increaser |
| Poa | pratensis | Kentucky Bluegrass | Increaser |
| Solidago | missouriensis | Missouri Goldenrod | Increaser |
| Verbena | stricta | Wolly Verbena | Increaser |
| Vernonia | baldwinii | Common Ironweed | Increaser |

* Scientific Names from **Flora of the Great Plains**

**References:**


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# Clean Water Farming News

*Look for signs like the above to guide you to* ***Clean Water Farms Project Farm Tours*** *later this summer. (Dates to be announced later) Tours are planned for an on-farm composting operation at a dairy farm and management intensive grazing systems. (Signs are courtesy of Donn Teske and kids.)*

## EQIP Final Rules Due Soon

USDA sources say that the final rules for the Environmental Quality Incentive Payment Program (EQIP) are due out the week of May 19 (as this goes to press). There will likely be a sign-up during the month of June, so farmers and ranchers should contact their local county Natural Resource and Conservation Service (NRCS) offices for application information.

The program offers farmers 5 to 10 year contracts which provides cost-share and incentives for a range of conservation practices, most of which willl benefit water quality on the farm. Although the program is targeted to several multi-county areas, funds are available for some conservation needs in non-targeted counties.

Kansas has $6.6 million to allocate by September 30, 1997.#