Grassland Curing Guide

A guide on how grasses green-up and cure in the Midwest

Please submit curing observations via wxcoder.org each Monday morning

(March through May and September through mid-November)

or call 800-759-9276

The Grassland Curing Guide

This booklet will assist you in estimating the level of cured grasses (primarily in ditches and natural areas) for the purpose of assessing and predicting fire danger and fire behavior. Visual estimation based upon the Grassland Curing Guide helps to assess grass fuel moisture.

Estimates of curing status aid the:

- Determination of the onset of fire season
- Estimation of fire danger
- Calculations of fire behavior and fire spread
- Implementation of fire restrictions / declaration of burn bans
- Decision making for fuel reduction burning
- Anticipating / planning for deployment of fire fighting resources

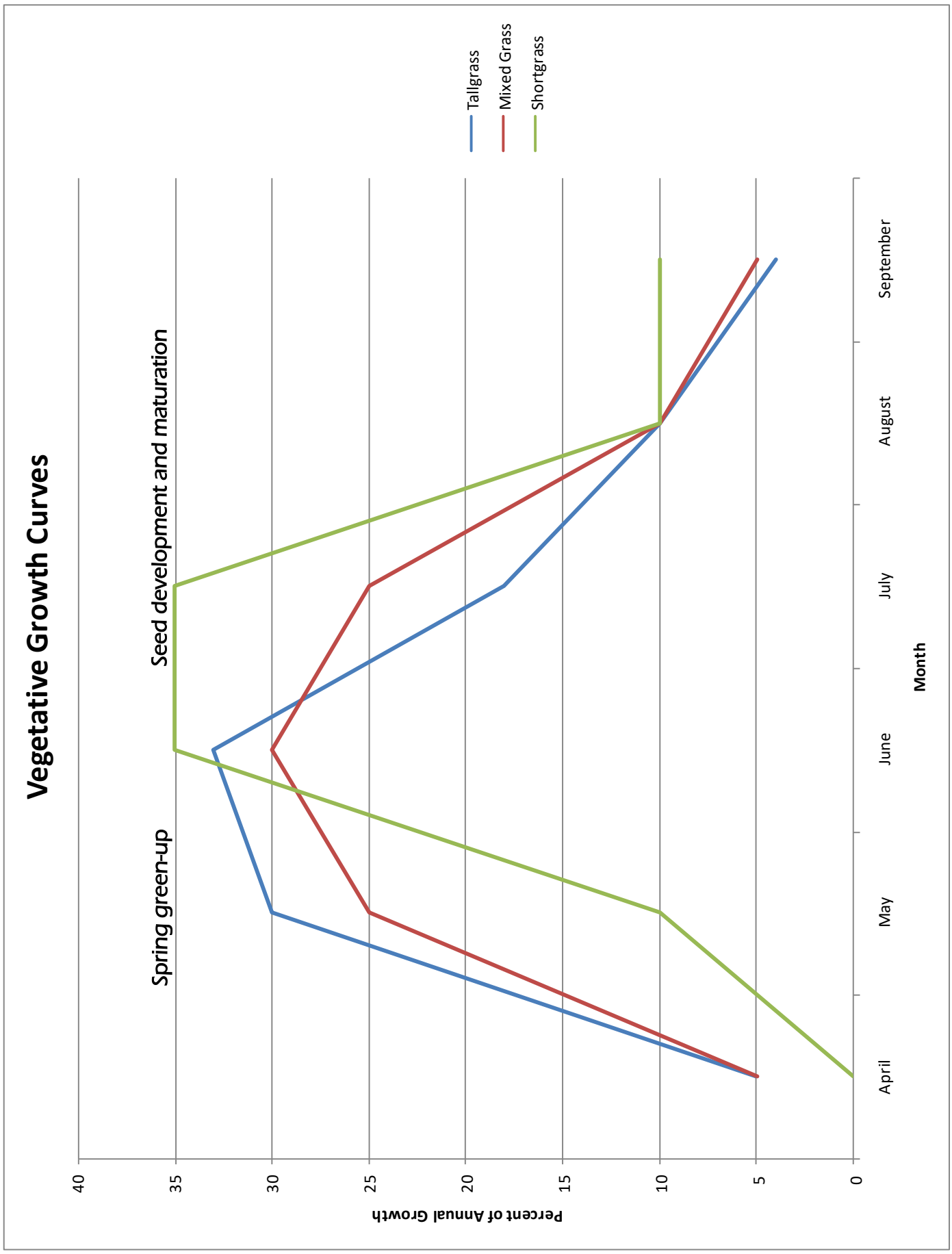
The Green-up and Curing Processes

Most native, crop, and pasture species develop through a life cycle in which the plant annually greens up in the spring, matures during the summer, dries out in the late summer or fall, then dies or becomes dormant. This annual drying process is termed curing, and this how fuel is created which generates the potential for grassland fires..

During spring, above-ground plant material is cured from the prior growing season. As temperatures warm, roots are stimulated to begin a period of new growth known as green-up. Growth continues through the summer and is normally completed in the fall, depending on rainfall and temperatures. As plants reach maturity and the period of growth is completed, plants begin to lose their ability to draw moisture from the soil. Thus during the late summer and fall, plants lose much of their moisture and become cured, and this vegetation persists until green-up is well underway the following spring, completing the annual cycle.

A chart of the percentage of overall growth during the growing season in the central United States is shown in Figure 1. For example, the total growth of any plant during a growing season is 100%. Broken down by month, the greatest percentage of growth for tallgrass prairie usually occurs in June (33%), while the greatest growth for shortgrass occurs during June through July (35%). Growth slows markedly by late summer and comes to an end with the arrival of freezing temperatures.

Figure 1: Vegetative Growth Curves for Grasses in the Plains



How to use this Guide

The following photos are a guide only, and measurements made based on color alone are not adequate. Investigation of the physiological characteristics of the grass sward (the descriptions are located beside each photo) is also required.

- Ideally, you should study the ditches and natural areas at close quarters and at a number of different sites before determination of the state of curing. Viewing only from the roadside or fence-line may lead to inaccurate estimates.
- Determine the overall color and check for seed head development. Match these with the appropriate description in the guide and select the 'percentage cured' figure.
- Consider both cool season and warm season plants together. There is no need to separate the curing estimate by vegetation type.
- Ensure that the selected figure is appropriate to other native species within the area by observing a number of other locations.
- Do not worry about crop areas. Data for corn and soybeans (in the fall) are provided by the USDA.
- The 'percentage cured' may now be reported to the NWS. This information, along with the weather forecast, is used to estimate fire danger and behavior.

% Cured	Color	Physiological Change
0	Green	From the beginning of growth to commencement of seed head development
10	Green	Seed heads formed and flowering
20	Yellowish-Green	Seed heads maturing and seed dropping
30	Yellowish-Green	Most seed heads mature and seed dropping
40	Yellow-Green	Most seed heads mature and seed dropping
50-60	Straw—odd patch of green and greenish-yellow	Up to 1/2 of all stems have dropped their seed, some paddocks will be fully cured, others may be quite green
70-80	Straw—very little green showing anywhere	Most seed heads have dropped their seed, lower third of stalk may be green
90	Straw—odd green gully	Essentially all seed has dropped, odd individual stalk may be green
100	Bleached	All stalks fully cured, seed heads and stalks break easily

Important Notes

- Hot and dry weather in mid to late summer will speed the curing process, while consistent summer rainfall will delay the curing process.
- Curing is more patchy with increasing species number and variable topography.
- Rainfall before 60% cured will prolong grass life and slow curing, while rainfall after 60% cured will not further delay the curing of mature grass.
- Above 80% cured, fuel moisture content begins to be significantly influenced by environmental factors such as humidity and temperature.
- The long-term rainfall and temperature patterns and the growth habits of the individual grass species also influence the progression of curing.

When and How To Report Curing Values

March through May:

September through mid November:

Report each **Monday morning by 9 A.M.** (or any time you observe conditions have significantly changed)

During other periods of dryness such as extended drought, we may call and ask for reports.

Submit your curing observation at:

WxCoder.org

or call at (800) 759-9276

Thank you for your participation in this process. Your observations are critical to helping us assess and forecast fire danger in support of fire safety officials.

Special thanks to Mark Garvey at the Country Fire Authority in Australia, Mary-Beth Schreck of the NWS office in Wichita, KS, and Ray Wolf of the NWS in Davenport, IA for providing the information in this guide; and to Daryl Smith and David O'Shields of the Tallgrass Prairie Center at the University of Northern Iowa, and Gary Cramer of the Sedgwick County, Kansas Extension Office, and Janet Spurgeon of the NWS in Wichita for providing the photographs used in this guide.

0-10% Cured

Color

Green

Spring Green-Up

There may be a little cured plant material from the prior season, but growth is very active at this time.

Mid to late spring.

Seed Development

From the beginning of spring growth to the commencement of seed development.

Mid to late spring.

10-20% Cured

Color

Yellowish-Green to Green

Spring Green-Up

Spring green-up not yet complete.

Early to mid spring.

Seed Development

10%: Seed heads formed and flowering.

20%: Seed heads maturing and opening from top.

Late spring to early summer.

30-40% Cured

Color

Yellow-Green

Spring Green-Up

Spring green-up not yet complete.

Early to mid spring.

Seed Development

Most seed heads mature and seed dropping.

Late summer to early fall.

50-60% Cured

Color

Straw—Odd patch of green or yellowish-green

Spring Green-Up

Green-up apparent due to cool season species.

Early spring.

Seed Development

Approximately 1/2 of all stems have dropped their seed.

Note: Some fields will be fully cured, others may be fairly green.

Fall.

70-80% Cured

Color

Straw, very little green showing anywhere, some greenness still evident in lower third of stalks. Many stalks fully cured.

Spring Green-Up

Green-up becoming apparent due to cool season species.

Early spring.

Seed Development

Most seed heads have dropped their seed.

Late fall.

90% Cured

Color

Straw - Odd green spot

Spring Green-Up

Green-up just beginning to appear due to cool season species.

Late winter to early spring.

Seed Development

Essentially all seed has dropped, odd individual stalk may be green.

Late fall to winter.

100% Cured

Color

Bleached

Spring Green-Up

Green-up not yet be-gun.

Winter.

Seed Development

All stalks fully cured, seedheads and stalks starting to break easily.

Winter.