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Managing Hayfields for Maximum Productivity

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Hay is big business in Oklahoma, bringing in over \$500 million annually, especially in abundant rainfall years like this one. Management of hayfields for continued productivity makes good economic sense. Probably the most critical management practice is harvest date. Quality of hay and regrowth potential of the grass decreases after July 15. Haying after this date will greatly reduce carbohydrate reserves for next season's growth. The old adage take half and leave half prevents weakening of the grass stand. A Noble Foundation study found that with 50% leaf removal, 2 % of the roots stopped growing and with 80% leaf removal, all roots stopped growing. Roots are important for water and nutrient uptake. Leaf surface area is also important for photosynthesis which makes carbohydrates to fuel regrowth. One cutting of grass hay per year is also recommended with any subsequent grazing delayed until after frost. Grazing and haying can also be rotated in alternate years to allow for hayfield recovery.

How many soil nutrients are being removed with a hay cutting? With each ton of hay removed an average of 43 pounds of nitrogen, 10 pounds of phosphorus and 48 pounds of potassium are also removed. Although producers often replenish nitrogen for yield boosts, phosphorus can become depleted with annual forage removal. Phosphorus deficiency may be a problem especially in cropland that has been converted to hay and pasture plantings. Phosphorus is used by plants in large amounts for root development and photosynthetic efficiency. It is taken up through roots from water in the soil. The surest way to assess soil fertility is through soil testing. Take 15 to 20 sub samples to a depth of 6 inches randomly throughout the field and mix them in bucket. Take a pint-sized sample to the OSU Extension office and you will receive a report on actual nutrients needed. Acidity/alkalinity of the soil pH should be in the neutral range. An acid soil pH will lock up the phosphorus in the soil making it unavailable to plants. Typically native range and hay meadows do not benefit economically from fertilization unless an increase in carrying capacity is desired. If this is the case, soil test for accuracy of fertilizer application, pairing nitrogen with other deficient nutrients.

Visual indicators of phosphorus deficiency are purple coloration of stems and leaves and large areas of invasive plants such as annual threeawn or an abundance of broomsedge bluestem in native range or threeawn and foxtail in Bermudagrass fields. Annual threeawn and broomsedge bluestem may be reduced with cultural practices. A Kansas State University study found repression of annual threeawn with fall burning to remove the mulch next to the soil surface. Broomsedge bluestem can be reduced with early spring grazing down to 6 to 8 inches followed by deferred grazing for 60-90 days.

To maintain wild bird populations, avoid mowing during nesting season, May 1-July 1 and mow from the center to the outside of the field to allow escape routes for wildlife.

For more information about hayfield and pasture management, refer to OSU materials E-1021 Oklahoma Forage and Pasture Fertility Guide and NREM-2891 Native Hay Management or call or visit the Newkirk NRCS/Kay County Conservation District office at 580-362-3362 or 362-2438.

Photo caption: (Hayfield.jpg) Haying is big business in Oklahoma bringing in over \$500 million annually so hayfield management can increase your profit margin and grass stand longevity.

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