

GROWTH CHARACTERISTICS, HAY YIELD, AND FEED QUALITY OF KENAF GROWN IN MOHAVE VALLEY

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Abstract

Kenaf was grown as a hay crop in Mohave Valley to determine its growth characteristics, hay yield, and feed quality. The first cutting occurred 75 days after planting when plants were approximately 30 inches tall and had 30 nodes. Hay tonnage was only 1,000 lbs dry matter/acre, crude protein was 20.7%, ADF was 40.2%, and TDN was 57.5%. Forage quality was adequate for beef cattle and sheep.

Introduction

Farmers are looking for alternative crops to diversify their operations. Kenaf (*Hibiscus cannabinus*) is a warm season annual that is closely related to okra and cotton and is primarily grown for fiber production. Bark fibers from kenaf are used for cordage, while the core or woody fibers can be used in the production of paper, absorbants, animal bedding, wall board, and automobile brake linings. Kenaf grows fast, typically growing 8 to 10 feet tall and producing 6 to 10 tons of dry matter per acre within five to eight months after planting.

Kenaf also has potential as a forage crop for cattle feed. Crude protein content of kenaf hay ranges from 15 to 22 percent depending on plant maturity at harvest and leaf content. When grown for forage, farmers can get two cuttings per growing season. Kenaf was grown as a hay crop in Mohave Valley to examine its growth characteristics, hay yield, and feed quality.

Materials and Methods

A field experiment was conducted during 1998 in Mohave Valley, AZ located in western Mohave County to examine growth characteristics, hay yield, and feed quality of kenaf grown for hay. Ten acres of 'Everglades 71' was planted with a grain drill at a rate of 25 pounds seed per acre in 6 inch drill rows on flat ground on May 25, 1998. The resultant plant population was approximately 450,000 plants per acre. The field was basin irrigated and managed similar to the adjacent sudangrass crop.

The first hay cutting occurred on August 7 and forage was baled with a standard 3-wire baler at 20% moisture on August 14. On the average, kenaf plants had 30 nodes and were 30 inches tall at harvest. Little regrowth was observed after the first cutting, so a second harvest was not possible, and the crop was disced in October 5 to plant alfalfa.

Results and Discussion

Kenaf growth rates were approximately 0.1 inch/day for the first 30 days after planting (DAP), 0.15 to 0.20 inches per day from 31 to 50 DAP, 0.25 inch/day at 60 DAP, 0.30 inch/day at 65 DAP, and 0.40 inch/day at 75 DAP. Kenaf plants had approximately 30 nodes and were 30 inches tall when they were harvested which was 75 days after planting (Figures 1 and 2). Dry matter yield at the first cutting was only 0.5 ton/acre. Regrowth was inadequate for a second harvest.

Kenaf hay yields were disappointing at the Mohave Valley site. Kenaf could not be baled at a hay moisture content less than 10-12 percent, since substantial leaf loss and low forage quality would result. Hay feed quality determined by Pacific Analysis (Ontario, CA) is shown in Table 1. Kenaf hay received the following hay quality designations: good for crude protein and low for acid detergent fiber. This would make a poor dairy cow hay, fair dry cow hay, and a good beef steer or horse hay.

Table 1. Hay feed quality analysis for kenaf harvested August 7, 1998 in Mohave Valley, AZ.

Kenaf Feed Composition	Analysis (Dry Matter Basis)
Crude Protein (CP, %)	20.7
Digestible Protein (%)	14.0
Acid Detergent Fiber (ADF, %)	40.2
Neutral Detergent Fiber (NDF, %)	48.6
Total Digestible Nutrients (TDN, %)	57.5
Phosphorus (%)	0.37
Calcium (%)	1.65
Potassium (%)	2.76
Magnesium (%)	0.40

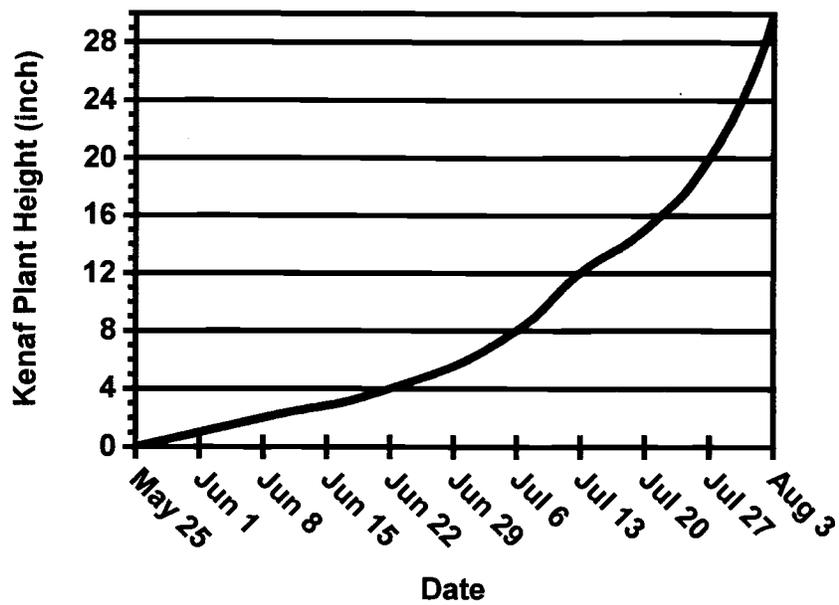


Figure 1. Kenaf plant height from planting to hay harvest.

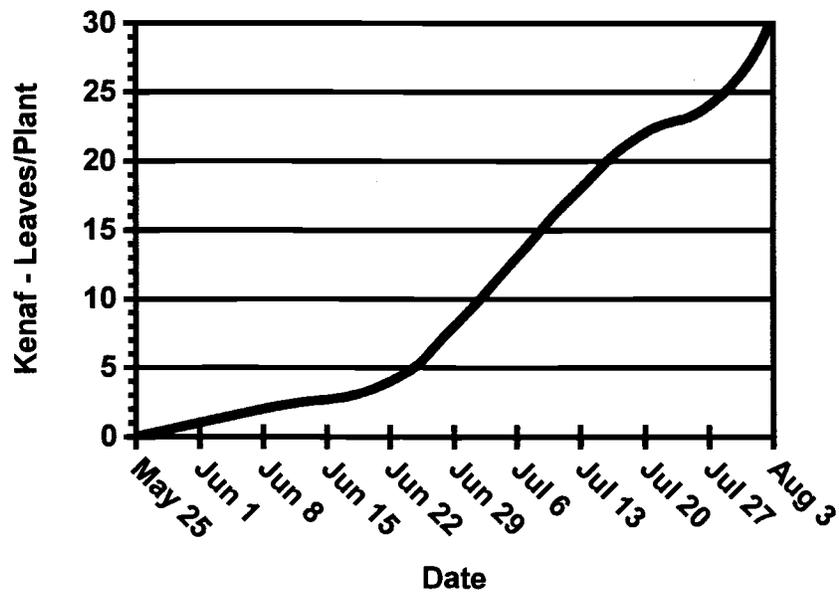


Figure 2. Leaves per kenaf plant from planting to harvest.