

# Revegetation of Retired Farmland: Evaluation of Eight Range Grasses

Gary W. Thacker and Jerry R. Cox

## *Abstract*

*In July of 1988, we planted eight range grass species on retired farmland in the Avra Valley west of Tucson. In November of 1989, Arabian yellow bluestem, kleingrass, buffelgrass, "Catalina" lovegrass, and bermudagrass all yielded over 1000 Kg/Ha of oven dry forage. "Cochise" lovegrass yielded 889 Kg/Ha, sideoats grama grass yielded 126 Kg/Ha, and bottlebrush yielded 86 Kg/Ha.*

## Introduction

This is a continuation of the series of studies that we initiated in 1986. The objective is to identify range grass species that will persist as a vegetative cover on retired farmland.

The 1988 and 1989 experiments are different from our 1986 and 1987 studies in that we removed the irrigation variable, which we are studying in a separate series of experiments. We also added more grass species for evaluation. At this point, we only have clipping data from the 1988 study.

## Materials And Methods

The experiment is at the Three Points Test Area, which is a farm that was purchased and retired by the City of Tucson for a water transfer. The soil types are Glendale silty clay loam and Gila silty clay loam. The land was last farmed in 1985.

The land preparation was intensive because of its neglected condition. First we had to burn piles of dry tumbleweeds (*Salsola kali*). Then we double disked green tumbleweeds, plowed 10 - 12" deep, and double disked again. We ran borders to separate the plots, and double disked the areas inside the borders. If the land is revegetated before retirement, very little tillage would be required.

The plot design is three replications of randomized complete blocks. Each plot is 20' x 300' long.

In July of 1988, we hand-sowed Arabian yellow bluestem (*Bothriochloa ischaemum* (L.) Keng.), Bermudagrass (*Cynodon dactylon*), buffelgrass (*Cenchrus ciliaris*), kleingrass (*Panicum coloratum*), "Catalina" Boer lovegrass (*Eragrostis curvula*), "Cochise" lovegrass (*E. lehmanniana* Nees x *E. trichophora* Coss and Durr.), bottlebrush (*Antheophora pubescens*), and sideoats grama (*Bouteloua curtipendula*). Only sideoats is native to Arizona. Arabian yellow bluestem is an Old World bluestem that is now in advanced testing at the SCS - Tucson Plant Materials Center. The others all originated in Africa.

Immediately after seeding, we began a series of establishment irrigations. We irrigated as often as necessary to keep the top centimeter of soil wet. In three weeks, the grass seedlings were established and we stopped irrigating.

In November 1989, we measured the standing forage in the plots by clipping the standing grass within random drops of a half-square meter quadrat. We oven dried the clippings before weighing them.

## Results And Discussion

The forage production of most of the species is very encouraging (Table 1). The strong showing of most of the grasses, in contrast to our disappointing results in 1987 (see the accompanying article), shows the importance of adjusting the establishment irrigation regime to meet the weather conditions.

Table 1. Forage production of eight range grass species in the 1988 study.

Species	1989 Forage --Kg/Ha, Oven Dry Weight--
Arabian yellow bluestem	2029 a*
Klein	1636 ab
Buffel	1338 abc
Catalina	1140 bc
Bermuda	1037 bc
Cochise	889 c
Sideoats	126 d
Bottlebrush	86 d
Coefficient of Variation	40.40%

\*Means followed by the same letter are not significantly different at the 0.05 level.

We will continue to monitor the forage production of this experiment and the one we planted in 1989 to see which of these grasses will persist as a vegetative cover.

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