

Here's a "Two-for-One" Deal With

SORGHUM

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Photoperiodism, or day length sensitivity, makes possible the production of a grain harvest and a forage harvest from one planting of sorghum and offers a new sorghum management possibility.

Traditionally, sorghum has been grown either (1) for a single harvest of grain or a single forage harvest, or (2) for double harvesting each year, as grain-grain, or forage-forage harvest from a single seeding.

A new slant is to harvest one crop of grain and one of forage from the same seeding. Photoperiodism, or day length sensitivity makes possible this new slant in the use of sorghums. Grown under short day length, certain sorghums mature grain at heights (four to five feet) that can be combined easily. Then the same sorghum, grown under long days, will grow tall (eight to nine feet) before maturing grain, thus making excellent silage.

Fits Into Farming Plan

Economically, the new slant or management possibility fits into Arizona agriculture in at least two ways, as will no other cropping sequence. First, if a farm operation is diversified to include livestock feeding that requires both grain and forage, then a photoperiodic sorghum is an answer. Secondly, if a grower is interested in improving the tilth of the soil and not lose the income from a crop, again photoperiodic sorghum is the answer. A sorghum can be planted early in March and the grain harvested in July or August. From this original seeding, a crop of forage is ready to be turned under after frost in November. This system of sorghum management will also comply with the governmental regulation for participation under the present feed grains act of the Federal Farm Program.

The choice of sorghums to grow is rather restricted at present. Only two or three dual purpose varieties or hybrids

exhibit this photoperiodic characteristic strongly enough to be used, namely Northrup-King 300, DeKalb FS 1A, and Hegari, and these in decreasing order of response. If Northrup King 300, for example, is planted in March (soil temperatures above 60°) when the day length is less than 12 hours, the internodes fail to elongate and the plants attain a height of approximately five feet when grain is ready to harvest. The grain yields compare favorably with those obtained by strictly grain types (Table 1). Northrup King 300, when planted or ratooned after equinox (April 20) and the day length exceeds 12 hours, will attain a height of

eight to nine feet when mature, due to elongation of the internodes. This late or second crop is suitable for silage purposes and will usually contain a good yield of grain.

Handle Same As Others

Agronomically, a dual purpose sorghum, such as Northrup King 300, grown for both grain and forage purpose, follows about the same management as any other sorghum. One would use 38-40 inch single rows, seed at the rate of eight pounds per acre, use approximately 100 pounds of nitrogen per acre side dressed after seeding, and 100 pounds in water for the second crop, and irrigate as needed for optimum growth. Mowing the stubble of the first harvest will probably result in production of larger, stronger stalks for the second crop (forage) than if not mowed back, but mowing back is not essential.

Table 1 presents data comparing Northrup King 300 (photoperiodic) and RS 610 (grain hybrid) in performance. The results are not conclusive but suggests what to expect Northrup King 300 to produce as grain and forage.

To compare possible returns from the two systems of management, that is, double harvesting RS 610, and using Northrup King 300 for forage and grain, the gross expected returns are summarized in Table 2.

Table 1: Yield Performance of a Photoperiodic Sorghum (NK300) and a Grain Hybrid (RS610) Compared.

University of Arizona Experimental Farms
1960 and 1961

Hybrid	Location	Harvests		
		1st (Mid-Summer) Grain Only	2nd (Fall) Forage	Grain
NK 300	Yuma 1960	8450	29.7 Ton	3597
	Mesa 1961	6623	15.7	Froze
RS 610	Yuma 1960	6785	Blasted	Blasted
	Mesa 1961	7068	None	4029

Table 2: Comparison of Expected Returns of Sorghums by Systems of Management.*

System	Yuma - 1960	Mesa - 1961
Grain-Grain (RS 610)	\$136	\$222
Grain-Forage (Northrup King 300)	\$318	\$211

*Grain Value — \$40 per ton; Forage Value — \$5 per ton.

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