

Double Harvesting Grain Sorghum

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To harvest the most grain from the smallest area, and at the lowest possible cost, is the goal of every grain sorghum producer in Arizona.

In areas of this state where the growing season is long, double harvest may be the answer to the grain sorghum producer's dream, but careful attention must be given to the production methods. To reap maximum yields at lowest cost, the following things must be carefully considered: (1) the hybrid to be grown; (2) planting date; (3) plant population, and (4) harvest.

THE HYBRID: Since the effective growing season (which begins when soil temperature is 65° F. and ends at frost) must be at least 240 days long and preferably nearer 300, the hybrid to be grown should be from the midseason maturity (105 days) group, so that two crops will have ample time to mature. Some margin in maturity must be allowed to compensate for the slower growth rate toward the end of the growing season.

THE PLANTING DATE: Since grain sorghum will grow only when the soil temperature is 65° F. or above, the usual planting date can be expected to be about March 15 in areas where double harvest can be done. Early April would be the final date.

THE PLANT POPULATION: The Arizona climate is so different from that in most grain sorghum producing areas that producers here should aim for a high plant population. Stands of 110,000 plants per acre (8 to 10 pounds of seed per acre), grown as two rows per bed with the rows being 14 inches apart on 40-inch beds, have repeatedly yielded approximately 10 percent more grain than when the crop is produced in the traditional single row. (See Table 1) The weed problem is also minimized, due to more shading of the soil surface.

THE HARVEST: How to handle the harvesting of grain sorghum produced in a double harvest system of management involves consideration of both weather and economics. The ap-

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Plants from crown nodes require approximately two weeks longer to mature a head than a new stalk from a leaf node; therefore, length of growing season may be critical, and (2) the expense of a second farm operation (mowing) is necessary.

The third plan is to plant in April and harvest in November. Data (Table 2) indicates that the yield is not reduced if the hybrid is adapted,

**Table 1—Comparison of Yields Based on Row Width
Mesa Experimental Farm, 1959**

Row Width	Plant Population*	Yields as % of 18" row		
		Amak R-10	RS 610	DD 38
18"	110,000	100.0	100.0	100.0
38"	50,000	94.2	91.7	91.0

*Estimated

**Table 2—Comparison of Yields Based on Harvest Systems
(Expressed as Per Cent of Usual System)
Mesa Experimental Farm, 1959**

Combine in August and	Row Width	Yields as %		
		Amak R-10	RS 610	DD 38
Leave 18" stubble	18"	100.0	100.0	100.0
	38"	100.0	100.0	100.0
Mow or shred stubble to 4"	18"	93.1	91.4	94.7
	38"	95.3	90.1	98.0
Do not harvest until November	18"	99.9	100.7	81.5
	38"	93.3	82.6	82.9

proach to the harvest problem may be any one of three: (1) combine and leave stubble, (2) combine and mow or shred stubble, or (3) delay combine until frost.

Typical results are shown in Table 2. Usually any grain sorghum from the midseason maturity group (105 day) planted in April will have matured and the grain dried to 13 percent moisture level by late July. The question, then, is how to manage the crop.

The usual harvest procedure is to combine the crop, leaving a stubble 18 to 20 inches in height, then fertilize and irrigate. Heads produced on this stubble are from leaf nodes. They are numerous but small (Table 3).

A second system is to combine the crop in July, mow or shred the stubble to 4 inches in height, fertilize, and irrigate. Heads produced on this stubble are usually from a crown node and large, like those on the parent plant. However, two problems are encountered in this system as compared to the previous one:

(1) The new stalk will be like the parent, have large heads and good yield if the frost date is late enough.

Table 3—Comparison of Length of Heads As Affected by Harvest System Mesa Experimental Farm, 1959

Variety	Row Width	Combine & Combine &	
		leave (ins.)	Mow (ins.)
Amak R-10	18"	4	9
	38"	7	10
RS 610	18"	4	10
	38"	6	9
DD 38	18"	5	6
	38"	6	6

even though more bird damage, shattering, etc., might occur. DD 38 is an open pollinated variety that is least adapted to this system of harvest management. Its yield is reduced considerably if it is allowed to remain uncut for a long period of time.

The real advantage of this particular system is that one expensive farm operation is eliminated if the first harvest can be avoided. Its success is based on the fact that when a sorghum head matures, a new inflorescence is initiated at the next node, or nodes, below the head even though the parent stalk has not been cut.