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## Forage and Grain Yields of Wheat and Barley

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Experimental Procedure

Our objectives were to determine the effects of variety and stage of plant growth at harvest on forage and grain yields of wheat and barley.

Plots were grown at the Animal Science and Industry Farm near Manhattan in 1973-74 and 1974-75 and at the South Central Kansas Experiment Field at Hutchinson in 1974-75. Hard red winter wheat varieties used were Parker, Eagle and Sage; soft red winter wheats were Arthur-71 and Blue Boy II. Three winter barley varieties were Paoli, Jefferson and Kanby. All cereals were harvested for forage in boot, milk and dough stages of plant growth and each treatment was replicated four times. A 60-sq.-ft. area was mower-clipped from each plot at each stage of growth to measure forage yields. Approximately 1 to 2 inches of stubble remained. A 12-sq.-ft. area was taken to determine grain yield.

Results

Hand harvesting plots gave higher yields than would be possible by machine harvest.

Wheat and barley forage and grain yields are shown in table 13.1. Forage yields are expressed as tons of 60% moisture forage per acre; grain yields are bushels of 15% moisture grain per acre.

Wheat and barley had similar forage yields. As stage of plant growth advanced from boot to dough, forage yields increased. At Manhattan, two-year, average dough stage yields were 75 and 77% higher than boot-stage yields for wheat and barley, respectively. Also at Manhattan, forage yields tended to be higher in 1974 than in 1975.

In 1974, severe lodging in both barley varieties reduced their grain yields. At both locations in 1975, barley grain yields were higher than wheat grain yields.

With two exceptions, variety of wheat or barley had very little affect on forage or grain yields. At Manhattan in 1974, soft red winter wheats yielded more grain than hard red winter wheats. In 1975, Paoli barley yielded less forage than Kanby barley.

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Table 13.1 Forage and Grain Yields of Wheat and Barley Harvested at Indicated Growth Stages.<sup>a</sup>

Location, year and variety	Forage yield, tons/acre <sup>b</sup>			Grain yield, bu./acre <sup>c</sup>
	Boot	Milk	Dough	
<u>Wheat</u>				
Manhattan, 1974				
Arthur-71	6.9	14.9	14.7	84.4
Blue Boy II	7.5	14.6	14.7	85.8
Parker	7.8	12.9	13.9	56.0
Eagle	7.2	12.3	13.7	54.8
Manhattan, 1975				
Arthur-71	6.2	8.9	10.1	62.8
Blue Boy II	6.6	10.1	10.1	65.7
Hutchinson, 1975				
Arthur-71	---	---	7.6	47.8
Blue Boy II	---	---	9.3	50.2
Eagle	---	---	9.4	45.4
Sage	---	---	9.4	45.4
<u>Barley</u>				
Manhattan, 1974				
Paoli	8.8	12.8	14.3	81.2
Jefferson	8.2	13.0	14.9	82.1
Manhattan, 1975				
Paoli	4.5	7.6	7.9	95.3
Kanby	5.6	8.9	10.4	90.4
Hutchinson, 1975				
Paoli	---	---	8.5	83.0
Kanby	---	---	9.3	81.2

<sup>a</sup> Each value is the mean of four plot observations.

<sup>b</sup> Adjusted to a 60% moisture basis.

<sup>c</sup> Adjusted to a 15% moisture basis.