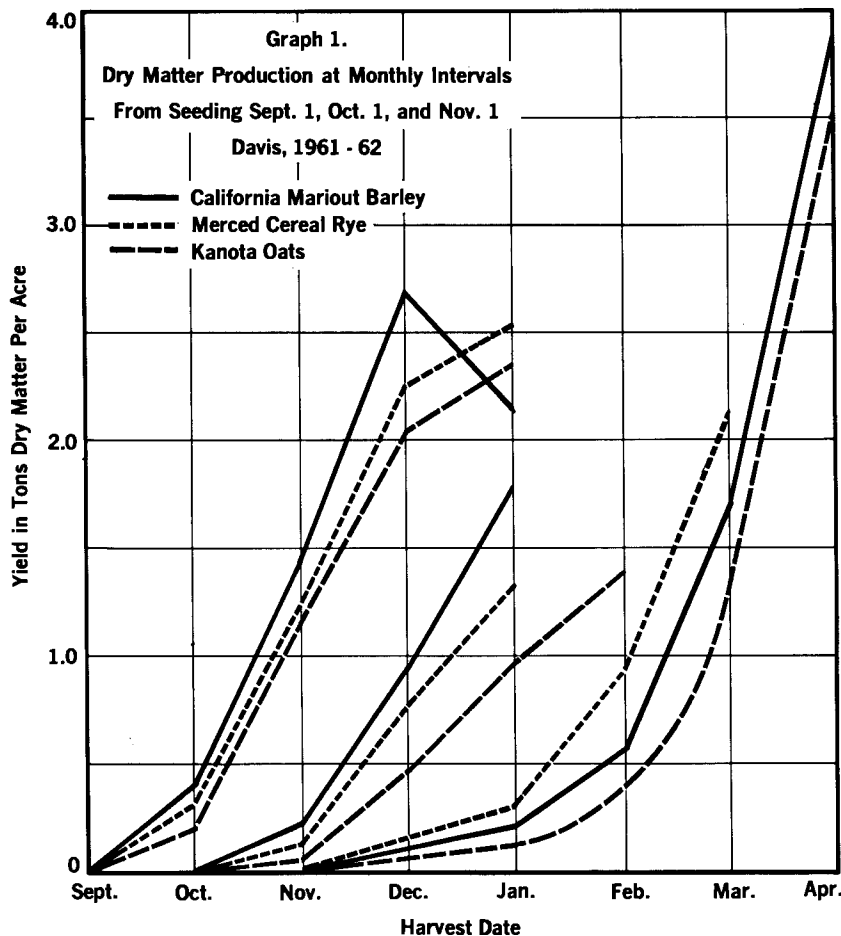


Planting Date Effects on Cereal Production for Winter Feed

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Considerable amounts of green feed can be produced from cereals for use after mid-November in the Sacramento and upper San Joaquin Valley areas, if attention is given to planting dates.



THERE IS an early winter "blank" spot in the yearly green feed availability calendar for many California livestock owners. Alfalfa and irrigated pastures produce very little feed from about November 15 through February in most sections of the Sacramento and upper San Joaquin valleys.

How best to provide suitable green chop or pasture during this deficit period has been a recurring annual problem. Barley, oats, and rye have been recognized among the best cool season sources of winter feed. But the questions of which species to grow and when they should be planted to provide feed during a specific period needs more intensive investigation.

Experiments during the winter of 1961-62 were designed to determine the relative yielding ability of these cereals, as affected by planting and harvest dates. Several useful facts emerged from these tests, although some questions still remain unanswered. The trials were conducted under field conditions at U.C., Davis, and at Modesto with the cooperation of the Agricultural Department of the Modesto Junior College.

At each test location the seed was drilled in 12-inch rows. Seeding rates in pounds per acre were: barley, 70; oats, 55; and rye, 35. No fertilizer was applied at Davis because trial plots were seeded on fertile land that had been kept fallow the previous season. Fifty pounds of nitrogen per acre were applied as ammonium sulfate just prior to seeding at

Plant. Date	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Sept. Plant. LSD (.01)	0.11	0.43	ns	ns				
Oct. Plant. LSD (.01)	0.009	0.29	0.45					
Nov. Plant. LSD (.01)	-	0.08	0.13	(.05)	0.09	ns		

Modesto—and after sorghum stubble had been plowed under. All treatments were replicated five or more times. Plots were seeded on September 1, October 1, and November 1.

Harvest data

At each harvest date, plants were clipped back to a height of approximately one inch. The material was weighed, then dried in a forage dehydrator. The results obtained at the two locations are presented in graphs 1 and 2. All yields are given in tons of oven-dried material per acre.

When seeded at Davis on September 1 or October 1, and harvested in November, December, or January, California Mariout barley produced more dry matter per acre than did Merced rye or Kanota oats. In 1961-62 yellow dwarf did not prove a problem in any of the plantings at Davis. Had it been present, undoubtedly California Mariout, a very susceptible variety, would have been far less productive than the fairly resistant Merced rye and Kanota oats. The early-planted barley was severely attacked by foliar diseases, such as net blotch (*Pyrenophora teres*), powdery mildew (*Erysiphe graminis*), and scald (*Rhynchosporium secalis*). September-planted barley, harvested in December and January, had a high per cent of the dry matter as maturing grain. Cereals planted November 1 did not begin to produce significant amounts of dry matter until March. Rye outyielded barley and oats when harvested in January, February, and March. Irrespective of planting time, Merced rye and Kanota oats were not attacked by the foliar diseases so prevalent on the barley.

Rye resistance

In the September 1 seeding at Modesto, Merced rye proved superior to barley and oats in dry matter production when harvested from October to January. This was probably due to the fact that rye is more resistant to yellow dwarf disease which did occur in the area. Again, as at Davis, barley was hard hit by foliar diseases; and a considerable part of the dry weight was comprised of filling grain. The October seeding of California Mariout barley proved higher yielding than rye or oats when harvested from November through February 1. In the November 1 seeding, barley and rye yielded equally as well, significantly outyielding oats when harvested February 1.

In the early vegetative growth stages,

all three species were quite leafy. Because the oats required a longer time to mature, they remained in the vegetative stage longer than barley or rye and provided a more leafy, and probably more palatable, forage.

As would be expected, the protein content of the harvested forage from the September seedings progressively decreased with each harvest date. The protein percentage of the three species agreed closely at each harvest date, averaging 33.2 in October, 17.8 in November, 12.8 in December, and 11.8 in January.

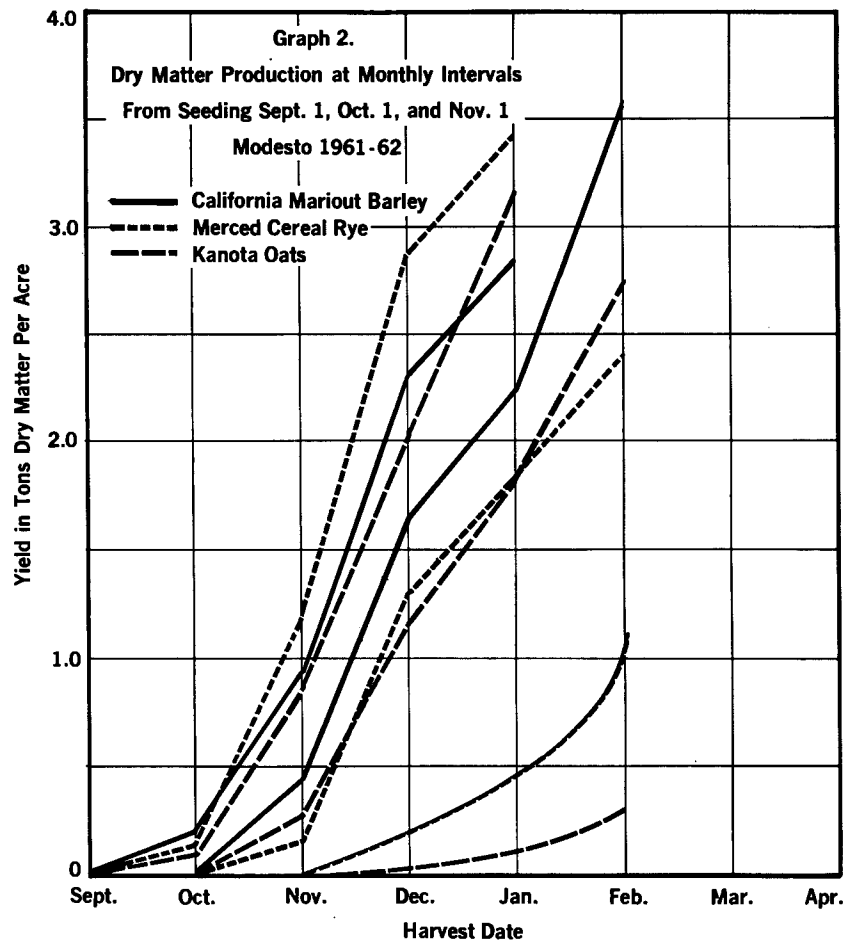
Dairy use

Dairymen considering the use of cereal rye for pasture or green chop should keep in mind the general recommendation that milking stock should not be fed green rye forage sooner than two hours before milking to prevent an off flavor in the milk.

Cereals seeded much earlier than September 1 mature quickly, producing seed

heads on very short stems with few leaves. It seems evident that with the varieties now available, little green feed can be expected from cereals for the months of September, October and early November in the Sacramento and upper San Joaquin Valley areas, regardless of planting dates. Considerable amounts of feed can be produced for use after mid-November if attention is given to planting dates. The quantity of feed produced by these species during the winter months is dependent upon the temperature. Most cereal varieties grow very slowly when the mean daily temperature drops below 45°F.

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Sept. Plant.	LSD (.01)	0.06	0.23	0.57	ns
Oct. Plant.	LSD (.01)	0.09	0.32	0.66	0.86
Nov. Plant.	LSD (.05)	—	—	—	0.47