

Forage yields from ryegrass and ryegrass-cereal grain mixtures

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The demand for early fall pasture in the Imperial Valley and other southwest desert areas has continued to be important, especially with the current low income from cattle returns. Pasture patterns vary but, generally, lightweight calves are imported year around and grazed on some type of pasture before going into the feed lot.

Sudangrass and bermudagrass are excellent pasture crops, producing well from May through September or early October. These are followed by annual ryegrass, with pasturing beginning in mid-December or later and often lasting through May. Pasture production usually is low from early October through December.

Production experiments were conducted at the U.C. Imperial Valley Field Station at El Centro to determine if ryegrass mixed with rapidly-growing cereal grain crops such as barley would produce forage adequate for pasturing during the October through December period.

Ryegrass, barley, NK6M mixture (hooded barley, oats, ryegrain, and ryegrass), and ryegrass-barley mixture were evaluated during 1975 and 1976 for early, seasonal, and total forage production.

Seed was drill-planted at 6-inch row spacing in early October at 25 pounds per acre for ryegrass, 80 pounds per acre for barley, 80 pounds per acre for NK6M mix, and 20 pounds per acre ryegrass/60 pounds per acre barley for the ryegrass-

barley mixture.

Plots were 20 by 20 feet. Ammonium nitrate fertilizer was applied preplant at the rate of 120 pounds nitrogen per acre and 40 pounds nitrogen per acre after each cutting. Each treatment was replicated 4 times. Forage yields were taken from the center of each plot and production was determined on dry-weight basis. The first and second harvests in each year were taken when barley plants were 18 to 22 inches and ryegrass 12 to 16 inches tall. The third and fourth cuttings were taken when the ryegrass was 18 to 22 inches.

Dry matter production by cuttings is shown in figure 1. The yields from the first three cuttings varied from 1.0 to 1.7 tons per acre with a substantial increase (2.0 to 2.6 tons per acre) at the fourth cutting, except for barley. Barley production was the highest at the first cutting (1.7 tons per acre), declined to 0.7 ton per acre at the second cutting, and was not measurable at the third cutting.

Forage production from the first cutting showed no statistically significant differences between ryegrass, ryegrass-barley mix, and NK6M mix. (The latter approached a significantly lower yield than ryegrass at the 5 percent probability level). The ryegrass production was equal to the ryegrass-barley mix. Ryegrass then declined sharply in yield for the remainder of the growing season. Straight barley production was signifi-

cantly higher than NK6M mix (LSD [0.05] = 0.35), and 0.34 ton per acre higher than ryegrass.

Ryegrass production was significantly higher than ryegrass-barley mix at the second and fourth cuttings, and higher than NK6M mix at the fourth cutting. There were no yield differences at the third cutting. The ryegrass in the ryegrass-barley mix never recovered sufficiently to equal the production of ryegrass alone. The NK6M mix production was equal to ryegrass at the second and third cuttings and was significantly lower at the fourth cutting (LSD [0.05] = 0.35 ton per acre).

The yearly total dry-matter production and the two-year mean are shown in figure 2. There were large differences between years (LSD [0.05] = 1.0 ton per acre), with the mixtures yielding lower than ryegrass in both years, but similar to each other. The total dry matter production was 5.4, 5.4, and 6.5 tons per acre for ryegrass-barley, NK6M, and ryegrass, respectively. Ryegrass production was significantly higher than the other cultivars (LSD [0.05] = 1.2). The barley production ranged from 1.5 to 2.7 tons per acre with an average of 2.1 tons per acre.

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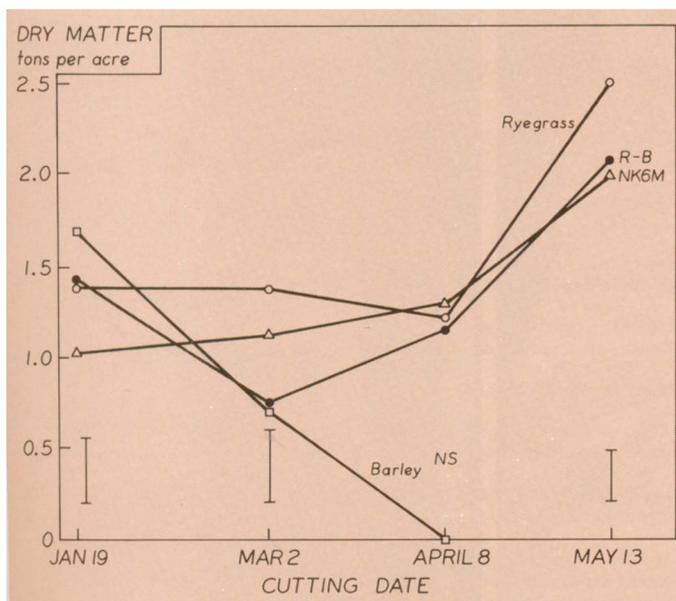


Fig. 1. Dry matter (0 percent moisture) forage production of ryegrass, barley, rye-barley mixture (R-B), and ryegrass/ryegrain/hooded barley/oats mixture (NK6M). (Two-year means at the Imperial Valley Field Station.) Vertical lines indicate least significant difference at $P = 0.05$.

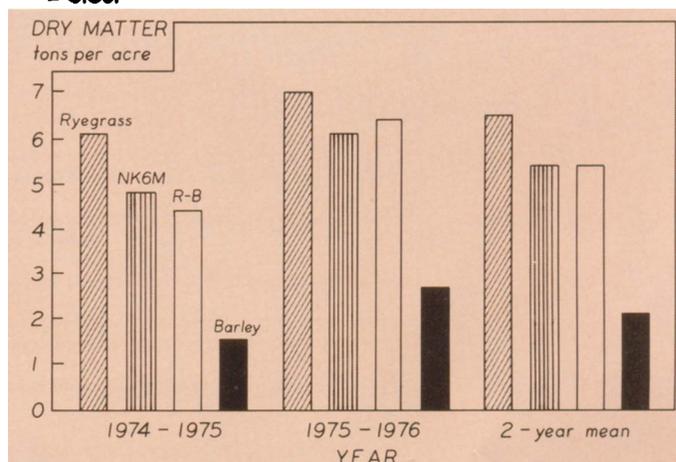


Fig. 2. Total season forage production in two years.