

Effect of rate of seeding and row spacing
on yields of wheat

H. Ukrainetz

The spring wheat variety Manitou, and three soft Mexican wheat varieties, namely Pitic 62, Carazinho, and QK1-13, were sown on fallow at 6, 12 and 24 inch row spacings on two soil types in 1968. The crops were grown under dryland conditions at Saskatoon on a Sutherland clay soil, and under irrigation on Bradwell fine sandy loam at Outlook. The seeding rate was adjusted to approximately 20 kernels per foot of row for all varieties and row spacings. Thus, with each increasing width of row spacing, the actual rate of seed per acre was reduced by 50%. A.P. 11-48-0 was applied with the seed at 80 lb/A for the 6 and 12" spacings, and at half this rate for the 24" spacing. Under dryland conditions, the 6 and 12" spacings produced very similar yields with all varieties. The yield of QK1-13 at 24" spacing was almost equal to the 6 and 12 inch spacings, but Manitou, Pitic 62 and Carazinho yielded significantly less at this spacing-rate level. Decreases in rate of seed per acre with increased row spacing was compensated for by increased number of spikes per plant, increased number of seeds per spike, and higher 1000 kernel weights.

Under irrigation, Manitou and QK1-13 produced highest yields with 6 inch row spacing. Yields of Pitic 62 and Carazinho were 50% and 75% higher at 12" spacing than at 6 inch. Only Carazinho produced higher yields with 24 inch spacing than with 6 inch spacing. Reduced competition between plants of the Pitic 62 and Carazinho at wider row spacings probably accounts for the increased yields. The effect of seeding rates (20, 40, 60, 80, 100, 120 lb/A) and row spacings (4.5 and 9 inch) on yields of wheat on Scott loam fallow was studied during the period 1965-68. Rates and spacings were compared with and without 11-48-0 at 60 lb/A.

In 1968, highest yields of Manitou wheat straw were obtained from seeding rates of 20 to 40 lb/A, at both row spacings. Without fertilizer, grain yields reached a maximum with a seeding rate of 60 lb/A. The 40 lb rate gave highest yields with fertilizer. Yields of both grain and straw were 11% higher from 4.5 inch spacing than for 9 inch. Four year average results for rates of seeding show that there is no advantage to seeding at a rate in excess of 60 lb/A on Scott loam fallow, especially if A.P. 11-48-0 is applied. At equal rates of seed per acre, yields with 4.5 inch row spacing were substantially higher than with 9 inch spacing.