

Table 10. Returns over specified expenses on total yields secured at spacings of 12, 10 and 8 inches for all 3 sizes of cut seed averaged \$364, \$367 and \$405 an acre, respectively. On the basis of the cost-price figures used in these calculations, growers can realize more profit per acre by planting 2-ounce seed than 1- or 1½-ounce seed, and by spacing the seed 8 inches apart in the row rather than 10 or 12 inches.

### DISCUSSION

Yields and returns over specified expenses which can be expected from the use of large (2-ounce) seed at an 8-inch spacing are much lower in a year of unfavorable growing conditions than in a year of more favorable conditions, Table 1. This is due to the fact that under favorable growing conditions more of the tubers will develop to marketable size and the yield will be high; whereas under unfavorable growing conditions fewer tubers will grow to marketable size and the yield will be low (5). In 1944 excessive rainfall killed potato plants 2 to 3 weeks before the end of the growing season. This resulted in a low yield. Thus, if Hastings growers should adopt the use of large (2-ounce) seed and plant them 8 inches apart in the row, good water control would be highly important.

After freezes in February and March 1943, plants from the 2-ounce seed recovered quicker from freezing injury and developed to full size earlier than those originating from smaller seed. Kimbrough and Costa (7) have shown that potato plants recover from simulated freezing injury and yield more when grown from large seed than when grown from smaller seed. Potato plants are severely damaged by freezes about once every 4 years at Hastings. Consequently, better recovery of plants from freezing injury would be another advantage to be obtained by the use of 2-ounce seed.

In these tests no attempt was made to control soil reaction. It is probable that the soil pH was 5.0 or lower in some of the experimental plots and in the light of more recent information (11), yields may have been decreased by this factor. Likewise, the fertilizer rate was constant for all seeding rates in any given year and rate variations between years were relatively small. The data presented cover only the effects of different seeding rates on a relatively constant level of fertility. A recognized trend in the Hastings area to applications of addi-