

THE EFFECT OF DOUBLES IN A CROP DRILLED TO A STAND NAS 505 ML

METHOD:

The experiment was drilled with Sharpe's Klein Polybeet pelleted seed on 5 April at 7 in. spacing followed by pyrazone overall sprayed at 2.2 lb a.i. per acre on 7 April. Emergence counts of plant stations and doubles were made on the 21 May and nil, 50% and 100% of the doubles removed where necessary. Final plant population and the final number of doubles were determined on 5 July. The experiment was harvested on 20-21 December under wet conditions but machine harvesting was still reasonably efficient.

RESULTS:

FINAL PLANT POPULATION (Plant stations '000 per acre) 5 July

Level of Doubles	Method of Harvesting		Mean
	Hand	Machine	
	(± 1.30 I)	(± 1.02 H) (± 1.12 V)	(± 0.98)
Nil	29.4 (0.0)	29.8 (0.0)	29.6 (0.0)
50% removed	30.0 (8.5)	26.6 (8.2)	28.3 (8.3)
All doubles left	27.8 (17.0)	27.5 (15.4)	27.6 (16.3)
		(± 0.79)	
Mean	29.1 (8.3)	28.0 (8.0)	28.5

SE per main plot (6 df) = ± 2.77 thousands per acre or 9.72% G.M.

SE per sub plot (3 df) = ± 2.73 thousands per acre or 9.58% G.M.

S.E. interaction (6 df) = ± 1.58 thousands per acre or 5.57% G.M.

Figures in brackets represent the actual percentage of plant stations containing two or more plants.

1. The average population obtained from 7 in. spacing was 28,500 plant stations per acre. All treatments had very similar populations in terms of plant stations and any variation in population was therefore not likely to affect yield. If expressed as total plants then obviously as the proportion of doubles increased the total plant population also increased.
2. The actual numbers of doubles obtained expressed as a percentage of plant stations are also given in the tables. Using a polyploid variety drilled to a stand with no doubles removed the maximum proportion of doubles was only 16%.

TOTAL ROOT YIELD (ton per acre)

Level of Doubles	Method of Harvesting		Mean
	Hand	Machine	
	($\pm 0.936I$)($\pm 0.959H$)($\pm 0.608V$)		(± 0.402)
Nil	22.96	19.73	21.34
50% removed	21.99	18.73	20.36
All doubles left	21.63	18.65	20.14
Mean	22.19	19.04	20.61

S.E. per main plot (6 df) = ± 1.14 ton per acre or 5.52% G.M.
 S.E. per sub plot (3 df) = ± 2.78 ton per acre or 13.50% G.M.
 S.E. interaction (6 df) = ± 1.29 ton per acre or 6.27% G.M.

1. Total yield of roots whether harvested by hand or machine showed a decline in yield as the proportion of doubles increased. The yield loss of 1 ton per acre due to 8.3% of doubles was rather surprising when compared with the 1951-53 experiments carried out at Sprowston. There was little further yield loss as the proportion of doubles increased to 16.3%.
2. When harvested by hand there was a small increase of 0.33 ton per acre in the incidence of small size roots as the level of doubles increased. The mechanical harvester however failed to recover this increased amount of small roots.
3. Top tare was greater from machine harvesting but there was little indication that the proportion of doubles had any effect on topping efficiency.

SUGAR YIELD (cwt per acre)

Level of Doubles	Method of Harvesting		Mean
	Hand	Machine	
	($\pm 3.07I$) ($\pm 3.14H$) ($\pm 1.90V$)		(± 1.26)
Nil	78.5	68.0	73.2
50% removed	75.1	64.3	69.7
All doubles left	74.0	63.7	68.9
Mean	75.9	65.3	70.6

S.E. per main plot (6 df) = ± 3.56 cwt per acre or 5.04% G.M.
 S.E. per sub plot (3 df) = ± 9.27 cwt per acre or 13.14% G.M.
 S.E. interaction (6 df) = ± 4.03 cwt per acre or 5.70% G.M.

1. Sugar content was not influenced by the proportion of doubles in the stand but did tend to be higher when lifted by machine.
2. Sugar yield was therefore mainly a reflection of root yield, showing the same decrease in yield as the proportion of doubles increased. As with root yield there was no interaction between the proportion of doubles and method of harvesting. At the level doubles obtained from a polyploid variety drilled to a stand the efficiency of mechanical harvesting was not affected.

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R.W.C.