

Box File ①
Note Book No. S.B. 1934.

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ENS/0608

FIELD EXPERIMENTS 1934.

Crop: Sugar Beet.

Field: F.

Experiment:

Periodic Lifting.

Treatments:

- | | | |
|--------------------------------|---|---|
| 1. Klein E drilled 31st March | } | Lifted at fortnightly intervals from the 14th Sept. to 5th January. |
| 2. Klein E drilled 11th May | | |
| 3. Marsters drilled 31st March | | |

Layout and size of plots:

4 randomised blocks, plots split (sampled) at random for lifting. Sampled area of each plot = 1/37th acre.

Manuring with dates of:

14 loads F.Y.M. ploughed in January.

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|--|---|-------------------------------------|
| 3 cwts./acre Super. | } | applied to all plots on 29th March. |
| 2 cwts./acre 30% potash salts. | | |
| 3 cwts. acre S/A applied to appropriate plots on 31st March and 11th May | | |

Date of Drilling:

Variety:

Seed rate: 20 lbs/acre
each variety.

Date of Germination Counts: Early Drilling 14th May (44 days from drilling)
Late drilling 15th June (35 " " ")

Date of Harvesting:

Remarks (previous cropping, cultivations etc.)

Previous crop: barley, stubbed burnt and cultivated, followed by heavy harrows. Ploughed 14 inches deep during winter.

Method of Sampling.

- Germination Count: No. of plants in each 5 in. of a 50" length of row, repeated 12 times (duplicates on 6 centre rows) of each plot.
- Plant Population: Centre 6 rows of whole plot counted.
- Lifting: Area divided N-S into two, one sample of ten beet drawn from each sub-plot. Sample consisting of ten successive beet in a row at random. Discards allowed between successive liftings. Each sample washed, weighed and analysed for sugar content.

The object of the experiment was to test Klein E as a possible strain for early drilling; to test the effect of early drilling on the yield and sugar content through out the lifting season; to compare early drilled Klein E with Marsters drilled at the same time, and with Klein E drilled in May.

At the middle of July, early drilled Klein E could be picked out by its larger top, while the tops of late drilled Klein E were as big as Marsters. During the summer the early drilled beet showed a greater tendency to wilt than the late drilled beet. There was moreover more yellowing of the outer leaves on the early drilled beet, but as the lifting proceeded the difference became noticeably less and by December all plots were green and showed no sign of yellowing. ✓

Rainfall Figures.

1st - 2nd Lifting	0.89"
2nd - 3rd "	0.62"
3rd - 4th "	0.61"
4th - 5th "	0.64"
5th - 6th "	1.52"
6th - 7th "	1.54"
7th - 8th "	0.95"
8th - 9th "	1.51"
Total	8.28".

Yield of Sugar - Cwts. per Acre.

Date of Lifting	Klein E Drilled		Marsters drilled	Mean
	11th May	31st March	31st March	
1. 14th Sept.	31.91	36.03	43.53	37.16
2. 28th Sept.	40.22	41.34	38.69	40.08
3. 12th Oct.	41.01	43.00	42.06	42.02
4. 26th Oct.	39.34	45.19	47.72	44.08
5. 9th Nov.	42.47	40.91	48.09	43.82
6. 23rd Nov.	44.41	48.78	49.40	47.53
7. 7th Dec.	44.56	47.16	59.28	50.33
8. 21st Dec.	43.91	51.81	49.81	48.51
9. 4th Jan.	45.78	51.09	49.75	48.87
Mean	41.91	45.03	47.59	

Plant Population.

	At Germination No. of plants per 50" of row.	% of Mean	Final Plant Population	% of Mean	% of Bolters.
Marsters	37.4	108	28,900	101	9.7
Early Klein E	29.6	85	29,200	102	4.0
Late Klein E	37.0	107	27,700	97	0.1
Standard Error	2.69	7.7	422	1.4	

'Z' Insig.

'E' Insig.

All yields are calculated on an average, all-over plant population of 28,600 per acre.

Yields of Washed Beet - Tons per Acre.

Date of Lifting	<u>Klein E Drilled</u>		<u>Marsters Drilled</u>	Mean	S.E.
	11th May	31st March	31st March		
1. 14th Sept.	9.8	11.0	12.6	11.1	
2. 28th Sept.	11.9	12.0	10.8	11.6	
3. 12th Oct.	11.5	12.3	11.6	11.8	
4. 26th Oct.	10.8	12.2	12.8	11.9	0.42
5. 9th Nov.	12.0	11.1	12.9	12.0	(3.27%)
6. 23rd Nov.	12.5	13.9	13.5	13.3	
7. 7th Dec.	13.3	13.9	16.8	14.3	
8. 21st Dec.	13.4	15.8	14.4	14.5	
9. 4th Jan.	14.2	15.6	14.7	14.8	
Mean	12.16	13.09	13.34	12.9	
S.E.			0.24 (1.85%)		

No significant interactions (just misses significance at 5% point)

Yields at 1st and 5th liftings less than yield at 6th lifting, which is less than the yields at the 7th, 8th and 9th liftings.

Late drilled Klein E gave the lowest yield. No difference between Marsters and Klein E drilled at same time.

Sugar Content.

Date of Lifting	<u>Klein E Drilled</u>		<u>Marsters drilled</u>	Mean	S.E.
	11th May	31st March	31st March		
1. 14th Sept.	16.6	16.7	17.7	17.00	
2. 28th Sept.	17.3	17.7	18.3	17.75	
3. 12th Oct.	18.1	18.2	18.4	18.23	
4. 26th Oct.	18.7	18.8	19.1	18.85	
5. 9th Nov.	18.0	18.7	19.1	18.61	0.12
6. 23rd Nov.	18.0	17.8	18.6	18.16	
7. 7th Dec.	17.1	17.2	18.1	17.47	
8. 21st Dec.	16.8	16.7	17.7	17.08	
9. 4th Jan.	16.5	16.7	17.1	16.78	
Mean	17.46	17.62	18.24		
S.E.			0.087		

No significant interaction.

Gradual rise in sugar content to 4th and 5th lifting, (Oct.-Nov), then a gradual decrease to the 8th and 9th liftings.

Marsters had the highest sugar content, and time of drilling Klein E (on the average) did not affect the sugar content.

Yield of Sugar - Cwts. per Acre.

Date of Lifting	<u>Klein E Drilled</u>		<u>Marsters Drilled</u>	Mean	S.E.
	11th May	31st March	31st March		
1. 14th Sept.	32.5	36.8	44.6	37.97	
2. 28th Sept.	41.1	42.5	39.5	41.03	
3. 12th Oct.	41.6	44.8	42.6	43.00	
4. 26th Oct.	40.4	45.9	48.9	45.07	1.41
5. 9th Nov.	43.2	41.5	49.3	44.67	(3.082)
6. 23rd Nov.	45.0	48.5	50.2	48.23	
7. 7th Dec.	45.5	47.8	60.9	51.40	
8. 21st Dec.	45.0	52.8	51.0	49.60	
9. 4th Jan.	46.6	52.1	50.3	49.67	
Mean	42.32	45.97	48.59	45.63	
S. E.					1.15 (2.53%)

Interaction just significant at 5% point.

Yield of Tops - Tons per Acre.

Date of Lifting	<u>Klein E Drilled</u>		<u>Marsters Drilled</u>	Mean	S.E.
	11th May	31st March	31st March		
3. 12th Oct.	9.8	7.3	6.0	7.7	
4. 26th Oct.	8.0	7.1	6.3	7.1	
5. 9th Nov.	6.7	4.7	4.7	5.4	0.27
6. 23rd Nov.	7.7	6.5	5.1	6.4	(3.91%)
7. 7th Dec.	7.8	6.3	7.3	7.1	
8. 21st Dec.	7.5	8.4	6.4	7.4	
9. 4th Jan.	7.0	7.1	5.1	6.4	
Mean	7.8	6.8	5.8	6.8	
S. E.					0.28 (4.16%)

Interaction significant at 1% point.

Yield at 3rd and 4th liftings greater than yield at 5th and 6th liftings. Yields at 6th lifting greater than at 5th lifting. Significant drop in yield at last lifting. On the average, late drilled E yielded the highest, then early drilled E, then Marsters.

Marsters gave the heaviest yield of tops on 7th December, whereas early drilled E yielded the heaviest on 21st December and late drilled E on the 12th October.

7-8 liftings
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