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64/R/CV/C/10 Cutting and Virus - Cocksfoot and Lucerne

Rothamsted Research

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64/C/10.1

CUTTING AND VIRUS

(CV)

An investigation of cocksfoot mottle and lucerne mosaic viruses, and of the effect of cutting on the spread of these viruses, Long Hoos I and II, 1964 the second year.

Design: 3 randomised blocks of 4 plots each, plots being subdivided into 3 for crops.

Area of each sub plot: 0.0220. Area harvested: 0.0046.

Treatments: All combinations of:-

Sub plots: 1. Crops: Cocksfoot S143* (C), Chartrainvilliers lucerne (Lu), C and Lu in alternate rows (M).

Whole plots: 2. Number of cuts: 3 cuts (3), 5 cuts (5).

For treatment 3 the cuts are on the occasions of the 1st, 3rd and 5th cuts for treatment 5.

3. Virus disease introduced: None (0), cocksfoot mottle to C, or lucerne mosaic to Lu (V).

* Certain sub plots were later resown with Cocksfoot S137, the arrangement was modified so that the whole plots involved constituted one block. The yields from this resown block have been omitted from the analysis.

Basal dressings. C and M: 5 cwt 6:15:15 and 2 cwt 'Nitro-Chalk' (21% N) in spring, 4 cwt 16:0:16 after 1st and 3rd cuts. Lu: 5 cwt 6:15:15 in spring, 2 cwt 0:14:28 after 1st and 3rd cuts.

Cultivations, etc.:-

1963: Ploughed: Sept 11, 1962. Basal NPK compound applied: May 6, 1963. 'Nitro-Chalk' applied to C and M sub plots: May 13. Lucerne drilled at 17 lb, cocksfoot at 8 lb (8.5 and 4 lb on M sub plots): May 15. Sprayed with 2,4-DB at 48 oz a.e. in 40 gals: June 27. Topped with mower: July 26. Basal NK and PK compounds applied: July 31. Sub plots 3a, 4a, 5a and 7c failed because of weeds, rotary cultivated: Aug 20, rotary cultivated again and drilled with Cocksfoot S137 at 12 lb: Sept 16. Cut (except resown plots): Oct 4.

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1964: Lu sub plots sprayed with paraquat at 2 lb ion in 40 gals:
Feb 12, 1964. 'Nitro-Chalk' applied to C and M sub plots:
Mar 3. Basal NPK compound applied: Mar 11. Treatment 3 cut:
May 29, July 30, Oct 20. Treatment 5 cut: May 29, July 1,
July 30, Sept 2, Oct 20. Irrigated: Aug 11 (1 in.) and
21 (1 in.). Basal NK and PK applied after 1st and 3rd cuts.
Previous crops: Kale 1961, barley 1962.

NOTES (1) No yields were taken in 1963.
(2) Leaf samples were taken for virus identification.

Standard errors per plot.		Dry matter:	
1st cut	Whole plot:	0.63	or 1.6% (3 d.f.)
	Sub plot:	4.80	or 12.5% (8 d.f.)
3rd cut	Whole plot:	2.66	or 12.6% (3 d.f.)
	Sub plot:	2.78	or 13.2% (8 d.f.)
5th cut	Whole plot:	0.66	or 4.2% (3 d.f.)
	Sub plot:	1.33	or 8.3% (8 d.f.)
Total of 5 cuts	Whole plot:	4.00	or 4.3% (3 d.f.)
	Sub plot:	12.01	or 12.8% (8 d.f.)

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SUMMARY OF RESULTS

DRY MATTER

	O	V	3	5	Mean
1ST CUT					
	(1) and (2)		(1) and (2)		(±1.70)
C	51.6	49.6	49.7	51.5	50.6
Lu	19.0	21.0	19.1	20.9	20.0
M	44.4	44.8	46.9	42.3	44.6
			(±0.45)		(±0.32)
		O	38.1	38.6	38.3
		V	39.0	37.9	38.5
Mean (±0.32)			38.5	38.2	38.4

3RD CUT

	(1) and (2)		(1) and (2)		(±0.98)
C	18.7	16.6	28.1	7.3	17.7
Lu	22.1	23.2	34.0	11.3	22.6
M	23.7	22.4	36.6	9.6	23.1
			(±1.88)		(±1.33)
		O	33.4	9.7	21.5
		V	32.4	9.1	20.8
Mean (±1.33)			32.9	9.4	21.1

Mean D.M. %: 1st cut 20.4
3rd cut 22.5

1st cut 3rd cut
 (1) (±2.40) (±1.39) For use in vertical and interaction comparisons
 (2) (±1.98) (±1.75) For use in horizontal and diagonal comparisons

64/C/10.4

DRY MATTER					
	0	V	3	5	Mean
5TH CUT					
	(1) and (2)		(1) and (2)		(±0.47)
C	16.0	15.5	27.4	4.1	15.8
Lu	15.2	14.4	26.3	3.3	14.8
M	17.7	16.8	29.7	4.7	17.2
			(±0.47)		(±0.33)
		0	28.6	4.0	16.3
		V	27.1	4.1	15.6
Mean (±0.33)			27.8	4.1	15.9
TOTAL OF 5 CUTS					
	(1) and (2)		(1) and (2)		(±4.25)
C	104.5	99.1	105.2	98.4	101.8
Lu	73.5	75.2	79.4	69.3	74.3
M	108.3	104.2	113.2	99.3	106.2
			(±2.83)		(±2.00)
		0	100.0	90.8	95.4
		V	98.5	87.2	92.8
Mean (±2.00)			99.3	89.0	94.1

Mean D.M. %: 5th cut 25.0

5th cut	Total of	
	5 cuts	
(1) (±0.66)	(±6.00)	For use in vertical and interaction comparisons
(2) (±0.64)	(±5.30)	For use in horizontal and diagonal comparisons