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TABLE OF CONTENTS

Page

INTRODUCTION

REVIEW OF LITERATURE

MATERIALS

EXPERIMENTAL PROCEDURE

RESULTS AND DISCUSSION

YIELD, COMPOSITION, PALATABILITY

AND DIGESTIBILITY OF

MARROW-STEM KALE

CONCLUSIONS

REFERENCES

APPENDIX

STATEMENT OF WORKS

ACKNOWLEDGMENTS

RESUME

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## TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
I	INTRODUCTION. . . . .	1
II	REVIEW OF LITERATURE . . . . .	3
	(a) Yield. . . . .	4
	(b) Composition . . . . .	9
	(c) Palatability and Digestibility. . . . .	20
	EXPERIMENTAL. . . . .	23
III	YIELD . . . . .	23
	(a) Planning, Layout and Establishment . . . . .	24
	(b) Experimental Procedure . . . . .	30
	(c) Experimental Results. . . . .	35
	(d) Discussion of Experimental Results . . . . .	58
IV	COMPOSITION . . . . .	65
	(a) Experimental Materials and Methods . . . . .	66
	(b) Experimental Results. . . . .	68
	(c) Discussion of Experimental Results . . . . .	96
V	PALATABILITY AND DIGESTIBILITY . . . . .	107
	(a) Palatability . . . . .	108
	(i) Experimental Materials and Methods . . . . .	108
	(ii) Experimental Results. . . . .	115
	(b) Digestibility . . . . .	124
	(i) Experimental Materials and Methods . . . . .	124
	(ii) Experimental Results. . . . .	128
	(c) Discussion of Experimental Results . . . . .	133
VI	SUMMARY. . . . .	139
	REFERENCES . . . . .	142
	ACKNOWLEDGEMENTS	
	APPENDICES	

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
I	Summary of Data in the Literature for Green Matter Yields of Marrow-stem Kale, Unthinned and Thinned . . . . .	5
II	Summary of Data in the Literature for the Percentage Composition of Unthinned and Thinned Marrow-stem Kale, and Component Parts of Marrow-stem Kale . . . . .	10
III	Summary of Data in the Literature for Apparent Digestion Coefficients of Marrow-stem Kale Chemical Constituents . . . . .	21
IV	Total Rainfall, Number of Rain Days and Sunshine Hours for the Experimental Period, 16/9/56-24/3/57, and the 29-year Average for the Equivalent Period . . . . .	29
V	Results of Analyses of Variance for Plot, Component Part and Total Leaf Sample Green Matter Yields at each Sampling Date . . . . .	40
VI	Range of Green Matter Yields (Means) for Whole-Plant and Component-Part Samples of each Treatment Type of Marrow-stem Kale over the Sampling Period, 11th Jan. to 22nd Mar., 1957 . . . . .	42
VII	Results of Analyses of Variance for Plot, Component-Part and Total-Leaf Sample Green Matter Yields over all Sampling Dates . . . . .	43
VIII	Results of Analyses of Variance for Plot, Component-Part and Total-Leaf Sample Dry Matter Yields at each Sampling Date . . . . .	45
XIX	Range of Dry Matter Yields (Means) for Whole-Plant and Component-Part Samples of each Treatment Type of Marrow-stem Kale over the Sampling Period, 11th Jan. to 22nd Mar., 1957 . . . . .	48
X	Results of Analyses of Variance for Plot, Component-Part and Total-Leaf Sample Dry Matter Yields over all Sampling Dates . . . . .	49

<u>Table</u>	<u>Page</u>
XI Results of Analyses of Variance of Leaf Percentages (green matter basis) at each Sampling Date . . . . .	51
XII Results from Analysis of Variance of Leaf Percentages (green matter basis) over all Sampling Dates. . . . .	53
XIII Results of Analyses of Variance of Leaf Percentages (dry matter basis) at each Sampling Date . . . . .	55
XIV Results from Analysis of Variance of Leaf Percentages (dry matter basis) over all Sampling Dates. . . . .	57
XV Results of Analyses of Variance on the Dry Matter Percentages of the Component Parts of each Treatment Type of Marrow-stem Kale at each Sampling Date . . . . .	70
XVI Results of Analyses of Variance on the Dry Matter Percentages of the Component Parts of the Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	71
XVII The Average Dry Matter Percentages for each Treatment Type of Marrow-stem Kale taken as a Whole, at each Sampling Date . . . . .	73
XVIII Chemical Composition of the Component Parts and Whole Plants of the Three Treatment Types of Marrow-stem Kale . . . . .	74
XIX Results of Analyses of Variance on Crude Protein Percentages of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	75
XX Results of Analyses of Variance on Crude Fibre Percentages of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	76

<u>Table</u>	<u>Page</u>	
XXI	Results of Analyses of Variance on Ether Extract Percentages of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	78
XXII	Results of Analyses of Variance on Mineral Matter Percentages of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	79
XXIII	Results of Analyses of Variance on Nitrogen-free Extract Percentages of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	80
XXIV	Results of Analyses of Variance on the Percentage Composition of the Plants taken as a Whole of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	82
XXV	Chemical Constituent Yields of the Component Parts and Whole Plants of the Three Treatment Types of Marrow-stem Kale . . . . .	84
XXVI	Results of Analyses of Variance on Crude Protein Yields of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	85
XXVII	Results of Analyses of Variance on Crude Fibre Yields of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	86
XXVIII	Results of Analyses of Variance on Ether Extract Yields of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates . . . . .	88
XXIX	Results of Analyses of Variance on Mineral Matter Yields of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	89

<u>Table</u>	<u>Page</u>	
XXX	Results of Analyses of Variance on Nitrogen-free Extract Yields of the Component Parts of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	91
XXXI	Results of Analyses of Variance on the Chemical Constituent Yields of the Plants taken as a Whole of the Three Treatment Types of Marrow-stem Kale over all Sampling Dates. . . . .	93
XXXII	Carotene Contents of Component Parts and Whole Plants of each Treatment Type of Marrow-stem Kale at each Sampling Date . . . . .	94
XXXIII	Grouping of the Experimental Animals and Allocation of Treatments . . . . .	110
XXXIV	Total and Average Daily Fresh and Dry Matter Intakes and Changes in Liveweight of Sheep fed Non-Experimental Marrow-stem Kale during the 7-day First Experimental Period . . . . .	116
XXXV	Total and Average Daily Fresh and Dry Matter Intakes and Changes in Liveweight of Three Groups, each of 3 Sheep, fed Experimental Marrow-stem Kale over the 10-day Final Experimental Period . . . . .	117
XXXVI	Unadjusted and Adjusted Mean Total and Daily Fresh Marrow-stem Kale Intakes over the Final Experimental Period . . . . .	119
XXXVII	Mean Dry Matter Percentages of Non-Experimental Marrow-stem Kale Offered to and Refused by the Sheep during the 7-day First Experimental Period. . . . .	120
XXXVIII	Mean Dry Matter Percentages of Experimental Marrow-stem Kales Offered to and Refused by the Sheep during the 10-day Final Experimental Period . . . . .	120
XXXIX	Unadjusted and Adjusted Mean Total and Daily Marrow-stem Kale Dry Matter Intakes over the Final Experimental Period . . . . .	123
XL	Chemical Composition of Feeds, Refuses and Faeces . . . . .	129

<u>Table</u>	<u>Page</u>
XLI Mean Apparent Digestion Coefficients of the Feed Constituents in the Three Types of Marrow-stem Kale Feed . . . . .	131
XLII Mean Values for Total Digestible Nutrient Contents, Starch Equivalents, Digestible Crude Protein Contents and Nutritive Ratios of the Three Types of Marrow-stem Kale Feed . . . . .	132
XLIII Mean Values for Total Digestible Nutrient Contents, Starch Equivalents, Digestible Crude Protein Contents and Nutritive Ratios of Unthinned and Thinned Marrow-stem Kale (Woodman 1954) . . . . .	138



## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Pugged Soil Surface in Paddock No.8, August, 1956 . . . . .	25a
2	Experimental Layout. . . . .	25b
3	Experimental Plot . . . . .	26a
4	Modified Planet Junior Hand Seed-drill . . . . .	26b
5	Hand-operated Rotary Cultivator . . . . .	26b
6	Tripod, Spring Balance and Canvas Sheet for Weighing Samples. Also 6-foot Pole to Mark Off Sample Lengths and Sickle for Cutting . . . . .	31a
7	Board, Marked in Measured Lengths, and Knife for Dividing Plants into Component Parts . . . . .	31a
8	Unthinned Marrow-stem Kale . . . . .	38a
9	6" thinned Marrow-stem Kale . . . . .	38a
10	12" thinned Marrow-stem Kale . . . . .	38a
11	Mean Green Matter Weights per Plot Sample and per Component-Part Sample of the Three Treatments.	39a
12	Mean Dry Matter Weights per Summed Plot Sample and per Summed Component-Part Sample of the Three Treatments . . . . .	44a
13	Mean Leaf Percentages (green matter basis) per Plot Sample of the Three Treatments . . . . .	50a
14	Mean Leaf Percentages (dry matter basis) per Plot Sample of the Three Treatments . . . . .	50a
15	Mean Dry Matter Percentages for each Summed Component Part of the Three Treatments . . . . .	69a

<u>Figure</u>		<u>Page</u>
16	Cutting-points of the Three Experimental Types of Marrow-stem Kale for Feeding to the Sheep .	112a
17	The Three Types of Experimental Feed . . .	112b
18	Weighing the Experimental Sheep . . . .	114a
19	Experimental Sheep Fitted with Harness for Collection of Faeces . . . . .	114a

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## CHAPTER 1

### INTRODUCTION

Due to climate and other natural advantages, the livestock industry in New Zealand is based upon a pastoral economy. The large-scale use of grassland and its products, hay and silage, for feeding the livestock, gives the industry its low-cost production structure. However, one of the problems associated with this dependency upon grassland is that of fitting seasonal production of pasture to stock requirements. McMeekan (1952) has listed the methods through which the solution may be sought. One of these is the use of supplementary crops. Hadfield (1952) estimated that 75% of the million acres devoted to cropping in New Zealand was used to supplement pasture.

In late summer and autumn, two periods when pasture production is unreliable, one of the most suitable crops for the provision of supplementary fodder is marrow-stem kale. Evidence of this is afforded, at least in part, by the increased acreage of marrow-stem kale grown over the past few years. According to a supplementary report on the Farm Production Statistics of New Zealand (1954), 8000 acres of marrow-stem kale were grown in 1933, whilst by 1954, the acreage had expanded to 110,000.

There is a distinct paucity of published literature concerning marrow-stem kale, compared with that dealing with other crop species, possibly because it is a relative newcomer to agriculture; it was introduced to commerce at the beginning of this century. European authorities are responsible for the bulk of experimentation on this crop. Calder (1939, 1944) has

published data on marrow-stem kale trials in New Zealand. Robinson at Massey Agricultural College has also studied certain aspects of marrow-stem kale growth in recent years. The experiment, which is the subject of this thesis, was designed to add to existing knowledge of this crop under New Zealand conditions.

Experimental work was undertaken to determine the effect of different thinning treatments on the yield, composition, palatability and digestibility of marrow-stem kale grown in rows.