

Table of contents

Table of contents..... I

List of abbreviations II

List of figures..... IV

Chapter 1: Introduction..... 1

Chapter 2: Literature review 3

2.1 The endocannabinoid system 3

 2.1.1 Cannabinoid receptors 3

 2.1.2 Endocannabinoids 4

 2.1.3 Endocannabinoid tone 6

2.2 The endocannabinoid system as a modulator of energy homeostasis..... 7

 2.2.1 Regulation of feed intake 8

 2.2.2 Regulation of the stress response in relation to feed intake 12

 2.2.3 Regulation of whole-body energy metabolism..... 14

 2.2.4 Regulation of lipid metabolism..... 14

 2.2.5 Regulation of glucose metabolism..... 16

2.3 The endocannabinoid system in dairy cows..... 17

Chapter 3: Aims of this thesis 19

Chapter 4: A Role for Peripheral Anandamide and 2-Arachidonoylglycerol in Short-Term Food Intake and Orexigenic Hypothalamic Responses in a Species with Continuous Nutrient Delivery 20

Chapter 5: Effects of endocannabinoids on feed intake, stress response and whole-body energy metabolism in dairy cows 37

Chapter 6: Discussion 51

Chapter 7: Summary 63

References 69

List of publications 87

Acknowledgements..... 89

Funding sources 90

Conflict of interest..... 90

Declaration of independence 90