Contents

Contributors, xiii
Preface, xv

1 Miniature Horses and Ponies, 1
*DG Pugh, Nicole Passler, and Sara Ziska*
1.1 Miniature Horses, 1
1.2 General Feeding of Miniature Horses, 1
1.3 Pony Feeding, 2
References, 2

2 Draft Horses, Mules, and Donkeys, 5
*DG Pugh, Sara Ziska, and Nicole Passler*
2.1 Draft Horses, 5
2.2 Donkeys, 6
2.3 Mules, 7
References, 7

3 Gastrointestinal System, 9
*Amelia Munsterman*
3.1 The Association between Nutrition and Colic, 9
  3.1.1 Feeds and Colic: Pastures, 9
  3.1.2 Feeds and Colic: Dried Forages, 10
  3.1.3 Feeds and Colic: Concentrates, 11
  3.1.4 General Practices to Prevent Colic, 11
3.2 Nutritional Plans for Horses with Colic, 12
  3.2.1 Identifying Nutritional Status, 12
  3.2.2 Nutritional Requirements of Horses with Colic, 13
3.3 Routes for Feeding Horses Recovering from Colic, 15
  3.3.1 Voluntary Intake, 15
  3.3.2 Supportive Enteral Nutrition, 17
  3.3.3 Parenteral Nutrition, 21
3.4 Diets for Specific Diseases, 27
  3.4.1 Uncomplicated Colic, 27
  3.4.2 Equine Gastric Ulcer Syndrome, 28
  3.4.3 Duodenitis/Proximal Jejunitis, 29
  3.4.4 Small Intestinal Strangulation, 30
  3.4.5 Ileal Impaction (Nonstrangulating Small Intestinal Obstruction), 31
  3.4.6 Ascending (Large) Colon Impactions, 32
  3.4.7 Sand Impactions, 34
  3.4.8 Enteroliths and Fecaliths, 35
  3.4.9 Ascending Colon Displacement, 36
  3.4.10 Ascending Colon Volvulus (Large Colon Torsion), 37
3.4.11 Cecal Impactions, 39
3.4.12 Cecocecal and Cecolic Intussusception, 39
3.4.13 Descending (Small) Colon Obstructions, 40
3.4.14 Descending (Small) Colon Strangulations, 41

References, 41

4 Muscular System, 51

Stephanie J. Valberg

4.1 Myopathies Associated with Nutritional Deficiencies, 51
4.1.1 Nutritional Myodegeneration due to Selenium Deficiency, 51
4.1.2 Equine Motor Neuron Disease and Vitamin E Deficiency, 52
4.1.3 Vitamin E Deficient Myopathy, 53
4.1.4 Sporadic Exertional Rhabdomyolysis, 54

4.2 Nutrigenomics, 55
4.2.1 Chronic Forms of Exertional Rhabdomyolysis, 55
4.2.2 Polysaccharide Storage Myopathy, 59
4.2.3 Hyperkalemic Periodic Paralysis, 66

References, 68

5 Endocrine System, 73

Iveta Becvarova

5.1 Equine Metabolic Syndrome, 73
5.1.1 Definition of Equine Metabolic Syndrome, 73
5.1.2 Epidemiology, 73
5.1.3 Species, Age, and Sex Predisposition, 73
5.1.4 Genetics and Breed Predisposition, 73
5.1.5 Risk Factors, 74
5.1.6 Geography and Seasonality, 74
5.1.7 Associated Conditions and Disorders, 74
5.1.8 Clinical Presentation, 74
5.1.9 Diagnosis, 80
5.1.10 Treatment, 82
5.1.11 Possible Complications of Treatment or of the Disease Process, 85
5.1.12 Recommended Monitoring, 85
5.1.13 Prognosis and Outcome, 85
5.1.14 Prevention, 85

5.2 Feeding Horses with Pituitary Pars Intermedia Dysfunction, 86
5.2.1 Horses with Pituitary Pars Intermedia Dysfunction and Adequate Body Condition, 86
5.2.2 Obese Horses with Pituitary Pars Intermedia Dysfunction, 87
5.2.3 Horses with Pituitary Pars Intermedia Dysfunction and Thin Body Condition or Horses with PPID that are in Work, 87

5.3 Pearls and Considerations, 87
5.3.1 Client Education, 87
5.3.2 Veterinary Technician Tips, 88

References, 88

6 Respiratory System, 91

Bryan M. Waldridge

6.1 Effects of Inhaled Dust and Potential Aeroallergens on Equine Respiratory Disease, 91
6.2 Respirable Dust Deposition in the Airways, 91
6.3 Effects of Soaking Hay, 93
6.4 Effects of Steam Treating Hay, 93
6.5 Feeding Forage Alternatives, 93
   6.5.1 Haylage, 93
   6.5.2 Hay Cubes, 93
   6.5.3 Pellets, 95
6.6 Exercise-Induced Pulmonary Hemorrhage, 95
6.7 Acute Interstitial Pneumonia, 95
References, 95

7 Neurologic System, 97
Peter Huntington
7.1 Cervical Vertebral Malformation, 97
7.2 Botulism, 98
7.3 Ryegrass Staggers, 99
7.4 Equine Degenerative Myelopathy and Neuroaxonal Dystrophy, 99
7.5 Equine Motor Neuron Disease, 100
7.6 Effect of Form and Dose of Vitamin E on Serum and Cerebrospinal Fluid Concentrations, 101
References, 102

8 Mycotoxins, 103
Ramesh C. Gupta
8.1 Aflatoxins, 103
   8.1.1 Toxicokinetics, 104
   8.1.2 Mechanism of Action, 104
   8.1.3 Toxicity and Clinical Signs, 105
   8.1.4 Reproductive and Developmental Effects, 105
   8.1.5 Treatment, 106
8.2 Fumonisins, 106
   8.2.1 Toxicokinetics, 107
   8.2.2 Mechanism of Action, 107
   8.2.3 Toxicity and Clinical Signs, 107
   8.2.4 Treatment, 108
8.3 Slaframine, 108
   8.3.1 Mechanism of Action, 109
   8.3.2 Toxicity and Clinical Signs, 109
   8.3.3 Treatment, 109
8.4 Trichothecenes, 110
   8.4.1 Toxicokinetics, 110
8.5 Mechanism of Action, 111
   8.5.1 Toxicity and Clinical Signs, 111
   8.5.2 Treatment, 112
8.6 Zearalenone, 112
   8.6.1 Toxicokinetics, 113
   8.6.2 Mechanism of Action, 113
   8.6.3 Toxicity and Clinical Signs, 113
8.7 Treatment, 114
8.8 Concluding Remarks, 114
Acknowledgment, 114
References, 114
9 Poisonous Plants, 119

Anthony P. Knight

9.1 Excessive Salivation Induced by Plants, 119

9.2 Colic and Diarrhea-Inducing Plants, 121
  9.2.1 Horse Chestnut or Buckeye, 121
  9.2.2 Field Bindweed (Morning Glory), 122
  9.2.3 Oak, 123
  9.2.4 Mountain Laurel, 124
  9.2.5 Pokeweed, 125
  9.2.6 Buttercups, 126
  9.2.7 Castor Oil Plant, 126
  9.2.8 Jimson Weed, Potato, and Tomato, 128
  9.2.9 Kentucky Coffee Tree, 129

9.3 Photodermatitis-Inducing Plants, 129
  9.3.1 Primary Photosensitization, 129
  9.3.2 Secondary Photosensitization, 131
  9.3.3 Liver Disease-Inducing Plants, 131

9.4 Neurologic Disease-Inducing Plants, 138
  9.4.1 Sagebrush, 139
  9.4.2 Locoweeds and Milkvetches, 140
  9.4.3 Milkvetch Neurotoxicosis, 143
  9.4.4 Yellow Star Thistle and Russian Knapweed, 143
  9.4.5 Horsetail, 145
  9.4.6 White Snakeroot and Crofton, Jimmy, or Burrow Weeds, 145
  9.4.7 Bracken Fern, 146
  9.4.8 Johnsongrass and Sudangrass, 147

9.5 Lameness and Muscle Weakness-Inducing Plants, 149
  9.5.1 Black Walnut, 149
  9.5.2 Hoary Alyssum, 150
  9.5.3 Coffee Weed or Coffee Senna, 150

9.6 Plant-Induced Calcinosis, 151
  9.6.1 Day-Blooming Jessamine, 152
  9.6.2 Flatweed, 153

9.7 Selenium Toxicosis, 153
  9.7.1 Causes of Selenium Toxicosis, 154
  9.7.2 Two-Grooved Milkvetch (Astragalus bisulcatus), 155
  9.7.3 False Golden Weed (Onopordum species), 155
  9.7.4 Woody Aster (Xylorhiza glabriflora), 155
  9.7.5 Prince’s Plume (Stanleya pinnata), 155
  9.7.6 White Prairie Aster (Aster falcatulus), 155
  9.7.7 Broom, Turpentine, Snake, or Match Weed (Gutierrezia sarothrae), 156
  9.7.8 Gumweed or resinweed (Grindelia spp.), 157
  9.7.9 Saltbush (Atriplex spp.), 157
  9.7.10 Indian Paintbrush (Castilleja spp.), 157
  9.7.11 Beard Tongue (Penstemon spp.), 157
  9.7.12 Effects of Acute Selenium Toxicosis, 158
  9.7.13 Effects of Chronic Selenium Toxicosis, 159
  9.7.14 Diagnosis of Selenium Toxicosis, 160
9.8 Anemia-Inducing Plants, 161
  9.8.1 Onions, 162
  9.8.2 Red Maple, 162
  9.8.3 Spoiled Sweet Clover, 163
9.9 Teratogenic Plants, 164
9.10 Sudden Death-Inducing Plants, 165
  9.10.1 Cyanide-Induced Sudden Death, 166
  9.10.2 Toxicity of Cyanogenic Glycosides, 167
  9.10.3 Serviceberry or Saskatoon berry (*Amelanchier alnifolia*), 167
  9.10.4 Wild Blue Flax (*Linum* spp.), 167
  9.10.5 Western Chokecherry (*Prunus virginiana*), 167
  9.10.6 Elderberry (*Sambucus* spp.), 168
  9.10.7 Sorghum Grasses, 168
  9.10.8 Arrow grass or goose grass (*Triglochin* spp.), 169
  9.10.9 Clinical Effects and Diagnosis of Acute Cyanide Poisoning, 169
  9.10.10 Treatment of Acute Cyanide Poisoning, 170
  9.10.11 Cardiac Glycoside-Induced Sudden Death, 170
9.11 Larkspur, 175
9.12 Monkshood, 176
9.13 Poison Hemlock, 176
9.14 Water Hemlock, 177
9.15 Yew, 178
9.16 Death Camas, 179
9.17 Avocado, 180
Glossary, 180
Supplemental Reading, 181
References, 182
Index, 189