

# Diseases of Cattle in Australasia



A comprehensive textbook

TJ Parkinson, JJ Vermunt and J Malmo

The suffix *passim* indicates non-continuous references to a subject over a range of pages.

1080 and 1081 compounds 808–9

abamectin 166

abdominal disorders

in calves 637–9, 822

distension 46, 93, 125–6, 637–9

examination 45–7

pain 73, 109–11, 114

abdominocentesis/abdominal paracentesis 53, 77, 94, 123

abomasum

abomasal bloat in calves 822

abomasopexy 101–3

arony 96, 99, 103, 109

dilatation 76, 93, 102, 103, 639, 822

displacement 47, 52, 96–7

left (LDA) 98–103, 638

right (RDA) 103–6

impaction 94, 108–9

motility 96, 97, 103

neoplasia 122

ulceration 106–8, 639

volvulus (AV) 103–6

abortion 460–80

abortus material 456

bacterial causes 464–8

brucellosis 71, 464–5

fungal causes 206–7, 265, 474–5

leptospirosis and 285–7, 465–6

listeriosis and 73, 467

protozoal causes 471–4

respiratory diseases and 205–7

salmonellosis and 129–30, 132–4, 466–7

venereal diseases and 454–8

viral infections and 143, 151, 468–71

abscesses 67

brain 310–11, 324

liver 52–3, 201, 255–6

lung 200–1

reticular 52

skin 580

*Absidia* spp. 474, 477

*Acacia georginae* 808

acantholysis, familial 772

accessory nerve 300

ACE *see under* ELISA tests

acepromazine maleate (acetylpromazine) 319, 843–4

acetoacetate 62–3

acetonemia *see* ketosis

acetone 62

achondroplasia *see* chondrodysplasia

acid-base balance 68–9

- acidosis  
  metabolic 68  
  respiratory 69  
  see also rumen acidosis  
'acorn calves' 825  
acorn poisoning 296–7  
*Acremonium* spp.  
  *A. coenophialum* 478  
  *A. lolii* 298, 333–4  
acrodermatitis enteropathica 773  
actinobacillosis 88, 580, 610–12  
*Actinobacillus lignieresii* 580, 610–12  
*Actinomyces* spp.  
  *A. bovis* 380, 609, 611–12  
  *A. pseudotuberculosis* 581  
  *A. pyogenes* see *Arcanobacterium pyogenes*  
actinomycosis 580, 611–12, 616, 842  
acupuncture 546  
acute bovine liver disease (ABLD) 262  
acute bovine pulmonary oedema and emphysema (ARPEF)  
  207–8  
adenocarcinoma 122  
adenosylcobalamin 565  
adenoviruses 647  
*Aeromonas* spp. 468  
aflatoxicosis 265  
agar-gel immunodiffusion (AGID) tests 139–40, 149, 233, 475  
age-related immunity 95, 137  
*Agrostis avenacea* 336  
akabane virus 308, 725–7  
albendazole 174  
albinism 774  
albumin 61  
alcelaphine herpesvirus 1 (AIHV-1) 151  
alcohol ethoxylate-based drenches 86–7  
alcohol toxicity 829  
algae 399, 588, 809–11  
'alkali disease' 587  
alkalinising agents 83, 89, 649  
alkalosis  
  metabolic 68–9, 90, 99  
  respiratory 68–9  
allergic conditions 243, 479  
abomasal 62  
anus and vulva 591–2  
milk allergy 214, 591  
nasal catarrh/granuloma 184, 211  
skin 66, 591, 603  
teats 592  
*Allisonella histaminiformans* 688  
*Allium* spp. 237  
alopecia 591, 773, 775  
alveolitis, diffuse fibrosing 208  
*Amaranthus* spp. 832  
*Amblyomma* spp. (ticks) 754  
aminoglycosides 841  
*Ammi majus* 588  
ammonia poisoning 332  
ammonium chloride 280, 296  
amoxicillin 187, 287, 377, 378–80, 839  
ampicillin 90, 377, 839  
amprolium 177–8  
amputation  
  claw 699–700  
  penile 295  
  prolapsed rectum 121  
  teat 407  
*Amsinckia* spp. 267  
amyloidosis 280–1  
anaemia 236–9, 561  
  classification 64, 236  
  congenital 773  
  copper deficiency 553  
anaesthesia 672–4, 845  
  epidural 78, 120–1, 845  
anagen defluxion 591  
analgesia 101–2, 111, 673–4  
anaphylaxis 214  
*Anaplasma* spp. 64  
  *A. marginale* 723–5  
anaplasmosis 723–5  
angiomas 231  
angioneurotic oedema 591  
angiosarcoma 245  
*Anguina* spp. 336  
  *A. finesta* 335  
Angus breed  
  Australian 769–770  
  congenital diseases 299, 763–4, 824  
  bones and joints 767–71  
  skin 772–5  
  other disease susceptibilities 125, 585–6, 621  
  place in New Zealand beef production 24–7  
Animal Health Board (AHB) [New Zealand] 28–9  
anion gap (AG) 68, 69, 105  
anionic salts/diets 97, 245, 529–31  
ankylosing spondylosis 709  
annual ryegrass toxicity 335–6  
anodontia 774  
anoestrus 9, 17, 433–6  
anoplocephalid tapeworms 173  
*Anoplura* 592  
anorexia 266, 549, 565  
anthelmintics 162–71, 193–4, 260–1, 563  
  amino-acetonitrile derivatives 171  
  resistance 30–1, 166, 168–71  
  sustained-release forms 165–6, 194  
*Anthoxanthum odoratum* 247  
anthrax 70–1, 243, 797–801  
anti-foaming agents 86–7, 815  
anti-inflammatory drugs see non-steroidal anti-inflammatory  
  drugs  
antibiotics 84, 92, 125, 837–42  
  cardiovascular disorders 223, 225, 246–7  
  clostridial diseases 791  
  eye infections 618, 620  
  liver disorders 256  
  mastitis treatment 360, 375–82  
  neurological disorders 309–13  
  resistance 131, 282, 838  
  respiratory diseases 183, 186–90, 193–200 *passim*, 212–13  
  salmonellosis treatment 132, 641–2, 651  
  urinary tract disorders 282, 287  
  uterine infections 442, 447, 450  
anticoagulants 62–3, 329, 509, 847–8  
antioxidants 347  
anus 122, 591–2  
*Arcanobacterium pyogenes* 224, 468  
  arthritis 706  
  mastitis 397, 401  
  pituitary abscess syndrome 324  
  renal disorders 274, 279

- Arcanobacterium pyogenes* (cont'd)  
 respiratory disorders 186, 187, 200, 202  
 skin abscesses 580  
 spinal abscesses 312  
 uterine infections 441–6 *passim*  
 wound infection 708
- argentaffin carcinoma 122
- Argentipallium blandowskianum* 266
- army caterpillars 96
- arsenic poisoning 178–9, 181
- arthritis, septic 655–7, 705–7  
 distal interphalangeal joint 692
- arthrodesis 700–1
- arthrogryposis 769
- artificial breeding (AB) 759, 762
- artificial insemination (AI) 416, 420–1, 423, 452–3  
 risks in 144, 234
- Ascaris suum* 183, 209
- ascites 53, 123
- aspartate aminotransferase (AST, formerly SGOT) 60
- Aspergillus* spp. 247, 265, 474–5  
*A. fumigatus* 207, 399
- Astragalus* spp. 587
- Astrelba* spp. (Mitchell grasses) 730–1
- astringents 403, 627, 652, 655, 679, 685
- ataxia 303, 764
- atipamezole 844–5
- atresia coli/ani 120, 776
- Aujeszky's disease 323, 741–2
- auscultation  
 abdomen and rumen 45–7, 123  
 displaced abomasum, left 98–100  
 displaced abomasum, right 104–5  
 gastrointestinal tract 75–6, 109–19  
 heart 43–4, 216–18  
 respiratory system 44–5, 183, 186–8, 192–208 *passim*, 212, 214
- Australian Bureau of Agricultural and Resource Economics (ABARE) 2
- Australian Dairy Herd Improvement Scheme (ADHIS) 4
- Australian Veterinary Reserve 21
- avermectins 164, 166, 191, 193
- axial wall crack 689–90
- axonal degeneration 764
- Ayrshire breed 242, 521, 585, 621, 767, 774
- azotaemia 277–8
- Babesia* spp. 64, 291, 312, 721–3
- babesiosis 291, 312, 721–3
- bacillary haemoglobinuria 256, 259, 290, 794–5
- Bacillus* spp.  
*B. anthracis* 70–1, 599, 797–801  
*B. cereus* 384, 397  
*B. licheniformis* 397, 467
- back pain 486, 496
- bacteria 654–8, 787–801  
 abortion 464–8  
 diarrhoea 129–42, 640–8, 651–3  
 mastitis 340–3, 349, 352–3, 357, 384–8, 394  
 neurological diseases 299, 308–10  
 in rumen 80, 82–4, 87–9, 255  
 skin diseases 578–81  
 urinary tract 274–5, 278–80, 283–9  
 uterus 440–6
- Bacteriodes* spp. 255, 444, 677
- BAL British Anti-Lewisite 179
- balanoposthitis 204–6, 494–5
- 'baldy calf syndrome' 772–3
- ballottement 46–7, 75–6, 98–9
- 'bambi calves' 771
- barium selenate 563, 564, 814
- basic slag poisoning 179
- basophils/basophilia 64–6, 67  
 basophilic stippling 63, 64, 289–90, 330, 535
- Bathurst burr (*Xanthium spinosum*) 266
- 'beak claw' 691
- 'beef measles' 174
- Belgian Blue breed 766
- benzimidazoles 31, 162, 164–6, 168, 174, 260  
 pro-benzimidazoles 164, 174
- $\beta$ -lactam antibiotics 838–9
- bethanecol 117
- bicarbonate 68–9, 528–30, 548, 650  
 sodium bicarbonate 69, 83, 224, 531, 650, 716
- bilirubin 250, 253, 263
- biochemistry 60–62
- biotin (vitamin B<sub>8</sub> or H) 574, 716
- birds (as source of infection) 131, 134–5, 191, 320, 471, 642, 798
- bishop's weed (*Ammi majus*) 588
- black boys (*Xanthorrhoea* spp.) 339
- black disease (necrotic hepatitis) 255, 256, 259, 792–4
- Black Picd cattle 824
- black soil blindness 730–1
- black spot/black pox 403
- blackleg (*Clostridium chauvoei*) 224, 788–92
- bladder 275, 278, 291–2  
 rupture 53, 123, 126, 295  
 tumours 240–1
- 'bladder worms' 175
- 'blind tack' technique 100
- blindness 48, 237, 239, 326, 328–31, 588–9, 616–25  
 black soil blindness 730–1  
 congenital 763–4, 776  
*see also* cataracts
- bloat (rumen tympany)  
 abomasal bloat in calves 822  
 feedlot bloat 85  
 gaseous bloat (secondary rumen tympany) 88–9  
 pasture/frothy bloat (primary rumen tympany) 20, 85–8  
 confusion with *Clostridium sordellii* infection 792
- Blonde d'Aquitane breed 767
- blood 60–2  
 bicarbonate concentrations 68–9, 99  
 cell counts 63–4, 91, 233–4  
 chloride concentrations 99  
 congenital disorders 766–7  
 copper concentrations 556–7  
 pH levels 68–9  
 sampling 62–3, 224–5, 262  
 selenium status 561  
 transfusion 847–8  
 zinc concentrations 571  
*see also* anticoagulants; haematology
- blowflies 592, 600–1
- blue-green algae poisoning 809–11
- bluetongue 470, 736–7
- bobby calves 23, 24, 635, 654
- body condition score (BCS) 42, 503–5
- bone diseases 539–41, 609–10, 612–13, 709  
 congenital defects 767–71, 825

- bone marrow 236  
 examination 67  
 haematology 63–7, 240
- boobialla (*Myoporum tetandrum*) 266
- Boophilus microplus* 291, 592, 604–6, 721, 723
- Borna disease 742
- Borrelia* spp. 679  
*B. burgdorferi* 227, 752–3
- borreliosis 752–3
- Bos indicus* 16–17  
 heat tolerance 732, 734–5  
 prepuce injuries 494  
 tick and fly resistance 603, 606, 723–4
- Bos indicus* x *Bos taurus* 16, 723
- botulism 319–23, 539, 797
- Bovicola (Damalinia) bovis* 596–7
- bovine enzootic haematuria (BEH) 240–1
- bovine ephemeral fever (BEF) 727–9
- bovine herpesvirus  
 Type 1 (BoHV-1) 186, 194–5, 204–5, 308, 453, 459, 468, 494–5, 499, 585, 620  
 Type 2 (BoHV-2) 404–5, 585, 742–3  
 Type 4 (BoHV-4) 444  
 Type 5 (BoHV-5) 308
- bovine immunodeficiency-like virus (BIV) 235
- bovine leukaemia virus (BLV) 231–5
- bovine leukocyte adhesion deficiency disease (BLAD) 766–7
- bovine maedi-like virus 235
- bovine papillomavirus (BPV) *see* papillomaviruses
- bovine papular stomatitis (BPS) 403, 584
- bovine parapox *see* bovine papular stomatitis
- bovine pneumonic pasteurellosis (BPP) 197–9
- bovine respiratory disease (BRD) 20, 194–6  
 incidence 17, 19
- bovine respiratory syncytial virus (BRSV) 186, 194–5
- bovine spongiform encephalopathy (BSE) 19, 323, 737–9
- bovine syncytial virus (BSV) 235
- bovine viral diarrhoea (BVD) and virus (BVDV) 135, 143–51, 186, 194–7  
 congenital cataracts 624–5  
 neurological diseases 307  
 reproductive failure 460, 469, 484  
 skin disorders 585
- bovine viral papillomatosis *see* papillomas/papillomatosis
- bovine visna virus 235
- bowel obstructions 118, 125
- Bowenia* 338
- brachial plexus paralysis 710
- Brachiaria* spp. 263
- brachiocephalic dwarfs 768
- Brachycera* 598
- bracken fern (*Pteridium aquilinum*) 121, 240–1, 282, 293
- bradycardia 43, 93–4
- Brahman cattle 16, 228, 765–6
- brain 299–307  
 abscesses/lesions 310–11, 324  
 coenurosis 174  
 fetal 463, 468, 470, 473  
 infections 308–9, 313–16, 324–7, 737–9, 744
- Brangus cattle 774
- Brassica* redwater 289
- Brassicaceae 208–9, 477  
 gascous bloat 89  
 phosphorus deficiency 540  
 toxicity 237–9, 289, 568–70, 804
- breeding 29, 484–7  
 in Australia 16–17  
 in New Zealand 30  
 to reduce bloat 88  
 to reduce facial eczema 271  
 to reduce lameness 717
- breeding soundness examination of bull 486–8
- breeding worth (BW) 4, 7–8, 30
- BREEDOBJECT 30
- BREEDPLAN 30
- bromsulphalein (BSP) test 253, 264
- bronchoalveolar lavage 185
- bronchopneumonia 182–3, 186–90 *passim*, 197, 200, 203–5, 207
- Brown Swiss breed 521, 732–4, 769
- Brucella abortus* 71, 135, 454, 464–5, 496, 749–50
- brucellosis 16, 71, 464–5, 749–50
- Brucellosis and Tuberculosis Eradication Campaign (BTEC) [Australia] 16, 17, 209
- buckwheat (*Fagopyrum esculentum*) 588
- buffalo fly (*Haematobia irritans exigua*) 592, 602–4
- buffers 68, 84, 244, 256, 716
- bulk milk sampling 149–50, 352–3
- buller steer syndrome 819–20
- bulls  
 abdominal diseases 91, 98, 103  
 anthelmintic resistance in 30–1  
 breeding soundness examination 486–8  
 fertility 420, 484–501  
 semen contamination 144
- Bunostomum phlebotomum* 155, 729–30
- bush fly 599
- bush tick 607
- butorphanol 845
- buttercups (*Ranunculus* spp.) 588, 832
- butylscopolamine bromide 117
- by-products, use of 5, 11, 829
- cadmium 553, 571, 829
- caecal dilatation, volvulus and torsion 52, 78, 109, 116–18
- caeruloplasmin 553, 556
- calcium 69–70, 504, 520–32  
 in diet 293, 296, 522–3, 528, 531  
 therapy 119, 226, 443, 528–9, 536  
*see also* hypocalcaemia
- calcium borogluconate 84, 105, 117, 525
- calcium chloride 529
- calcium copper edetate 557–8
- calcium disodium ethylenediamine tetra-acetate (Ca-EDTA) 330
- calcium fluoride 540
- calcium gluconate 89
- calcium propionate 529
- calf diphtheria (laryngeal necrobacillosis) 188–9
- Calicophorum* spp. 94
- California Mastitis Test 357–8
- Calliphora* spp. 600
- caltrops (*Tribulus terrestris*) 263, 589
- calves  
 abdominal diseases 637–9, 822  
 acquisition 634  
 bloat (rumen tympany) 88, 637–8  
 bobby calves 23, 24, 635, 654  
 congenital defects and disorders 229, 762–76  
 diarrhoea 130–3, 137, 141, 145, 640–54  
 drenching 167

- calves (cont'd)
- examination of newborn 636–7, 820–1
  - faecal egg count (FEC) 159
  - feeding 627–8, 821–2
  - haemorrhagic diseases 240, 641, 643–8
  - housing 134, 186–8, 633–4
  - hypomagnesaemic tetany 537
  - intestinal disorders 115, 120, 172–3, 175–8, 638, 640–54
  - laryngeal and oral necrobacillosis 188–9, 657–8
  - limb abnormalities 572, 770
  - liver infections 258, 260, 266
  - neurological diseases 306–12, 323–4, 328, 763–4
  - poisoning 328–31
  - premature 430, 461, 634
  - renal diseases 284, 285, 287–9
  - respiratory disorders 186–8, 191, 193, 197, 199, 205, 212
  - rumen development 628, 632–3
  - rumen transfaunation 84
  - 'ruminal drinking' 637
  - stillbirth/perinatal weak calf syndrome 820–1
  - umbilical disorders 636, 654–7, 658
  - veal calves 236
  - see also* weaning
- calving 414–6
- EBL reactors 235
  - emphysematous calves 47, 50
  - by heifers 27, 121, 547
  - in hot conditions 733
  - infections 387–8, 392
  - late-calving cows 436
  - postpartum examinations 50, 62
  - systems (by time) 2–3, 7–11, 26, 159, 350
  - traction/forced extraction 820, 821, 823–4
  - transition period 10–11, 26, 97, 237, 503–6
  - see also* dystocia; induction; seasonal calving; year-round calving
- calystegines 339
- Campylobacter* spp. 646, 823
- C. fetus* 453–7, 466
  - C. jejuni* 71–2, 154
- campylobacteriosis 453–7, 466
- 'cancer eye' 620–4
- sale and slaughter rules 623–4
- Candida* spp. 275, 399, 474
- canola 569
- canola oil 372
- Capripoxvirus* spp. 403
- carbendazim 270
- carbenicillin 839
- carbohydrates 20, 62, 277, 477
- engorgement/toxicity 76, 80–84, 90, 829
  - low and non-fibre (NFC) 85, 97, 505–6
- carbon dioxide 30, 68–9, 97, 182–4
- carbon tetrachloride 262
- cardiac tamponade 221, 226, 818
- cardiac white muscle disease 228, 560–1
- cardiomyopathy 227–9, 766
- Cassia/Senna occidentalis* 228, 339
- Castanospermum australe* 765–6
- casting 99, 671–2
- castration 293, 317, 319, 498
- analgesic 843
  - blood loss 760, 767, 847
- cataracts 145, 307, 624–5, 831
- catarrh *see* malignant catarrhal fever; nasal granuloma
- cation-anion balance *see* dietary cation-anion difference
- cats (as source of infection) 642, 738, 800, 833–4
- cattle ear mite 595
- cattle ticks 592, 604–6, 721, 723
- New Zealand cattle tick 291, 607, 753
- caudal fold test (CFT) 210
- caudal vena cava thrombosis (CVCT) 123, 201–2
- celiotomy *see* laparotomy, exploratory
- cephalosporins 190, 309, 377, 839–40
- cefquinome 309, 840
  - ceftiofur 133, 187, 196, 198, 295, 309, 442, 839–40
  - cephapirin 396, 400, 448–9, 451
- cereal grains 6, 293, 328, 530, 552, 560, 565–6
- cerebellar hypoplasia/abiotrophy 764–5
- cerebral diseases 300
- cerebellum 306–8, 764–5
  - dehydration 331–2
  - oedema 331–2
- cerebrocortical necrosis *see* polioencephalomalacia (PEM)
- cerebrospinal fluid 305–6, 308–9
- cervix 49–50, 121, 425–6, 440–1, 444–5, 466, 478
- abnormalities 480–2
- cestodes *see* tapeworms
- cestrum, green (*Cestrum parqui*) 266
- Cestrum* spp. 266, 829
- Channel Island breed 125, 236
- charcoal 166, 263
- Charolais breed 24, 25, 299, 625, 760, 764, 766, 769–70, 774, 775–6, 823, 824
- Chediak-Higashi disease 774
- chelating agents 330
- chicory 560
- Chlamydia* spp. 182, 454, 616, 840
- Chlamydophila* spp. 460
- C. pecorum* 833
- chlorhexidine 373, 374
- chloride (Cl) 99, 548–50
- in rumen 76–7, 94
- chlorophyll 251, 589
- choke 615
- cholangitis 263, 267–9
- cholestasis 250, 263, 268
- chondrodysplasia 760, 767–9
- chondrodystrophy 572, 767–8, 825
- Chorioptes bovis* 577, 592, 593–4
- chorioptic mange 592, 593–4
- chromium 573
- Chrysomya* spp.
- C. bezziana* 755
  - C. ruffifacies* 600
- cirrhosis 123, 249, 259–60, 265–6, 338
- citrullinaemia 762
- citrus pulp 265, 275, 587–8
- Claviceps* spp.
- C. paspali* 337
  - C. purpurea* 478, 587
- claw blocks and PVC shoes 697–9
- claw disorders 675–701, 717
- amputation 699–700
  - deformities 691
  - fissures 690–1
  - wear 680–1
- claw trimming 694–7
- cleft palate 608
- clorsulon 95, 260
- closantel 95, 260

- closed suture technique 100
- clostridial diseases 243, 255, 256, 787–97  
 bacillary haemoglobinuria 794–5  
 black disease (necrotic hepatitis) 792–4  
 botulism 319–23  
 enterotoxaemia 311–12, 795–7  
 myositis (blackleg *and* malignant oedema) 788–92  
 sudden death syndrome (*Cl. sordellii* infection) 792  
 tetanus 316–20
- Clostridium* spp. 442, 787–97  
*Cl. botulinum* 319–21, 788, 797  
*Cl. chauvoei* 224, 227, 788–92  
*Cl. fesceri* 788  
*Cl. haemolyticum* (*Cl. novyi* Type D) 255, 256, 290, 788, 794–5  
*Cl. novyi* 255, 256, 788–9, 791–5  
*Cl. oedematiens* Type B *see Cl. novyi*  
*Cl. oedematiens* Type D *see Cl. haemolyticum*  
*Cl. perfringens* 113, 136, 311–12, 323, 646, 788, 792, 796–7  
*Cl. septicum* 788–9, 791–2  
*Cl. sordellii* 788–93  
*Cl. tetani* 317, 319, 788, 797  
*Cl. welchii* 788
- clovers 86, 88, 247, 267, 289, 293, 560, 568
- cloxacillin 378, 379–80, 618, 839
- coagulase-negative *Staphylococcus* spp. (CNS) 382, 384, 387–8, 399
- cobalt 237, 564–8, 587
- coccidia 175–8, 632–3, 786, 823, 833–4, 840  
*see also Neospora caninum*
- coccidiosis 175–8, 786, 823, 840  
 nervous 323–4
- Cochliomyia* spp. 603, 755
- cockle burr (*Xanthium occidentale*) 266
- coenurosis 174
- coffee senna (*Senna/Cassia occidentalis*) 228, 339
- cold-water haemoglobinuria 289
- colibacillosis 72
- colic 109–10
- coliform bacteria 357, 394
- colloids 245
- colobomata 625, 775–6
- colon 52, 74, 115–21, 776  
 infection 130, 133, 324, 641, 643, 646, 729
- colostrum 628–31, 635
- comparative cervical test (CCT) 210
- complement fixation (CF) test 140
- complementary feeding 20
- computers, use of 36–7, 59
- concentrate feeding 5, 12  
 abomasal displacement 96–7  
 rumen parakeratosis 95  
 subacute rumen acidosis (SARA) 687–9  
 sudden introduction or increase 80, 89  
 transition period 97
- conception rates 8–9, 144, 415–33, 446–7, 450–2  
 under heat stress 732–3
- conformation 42, 668, 707, 771
- congenital defects 636–7  
 abdomen 122  
 due to BVDV 143–5, 469–70  
 eyes 624–5  
 intestinal tract 120, 776  
 joint laxity and dwarfism 825
- kidneys 281
- neoplasms 123, 586
- neosporosis 471–4
- nervous system 299, 306–8, 762–5
- palate 608
- reproductive system 480–2, 492, 498
- trachea 212  
*see also* genetic defects/disorders
- conjunctivitis 190, 616–20
- contagious abortion *see* brucellosis
- contagious bovine pleuropneumonia 750–1
- convulsions, familial 764
- Cooperia* spp. 30–1, 155–7, 159, 168  
*C. oncophora* 30, 155–6, 162–4  
*C. pectinata* 155  
*C. punctata* 155–6  
*see also* parasitic gastroenteritis
- copper 552–9  
 deficiency 228, 270, 552–8, 587, 785  
 poisoning/toxicosis 266, 291, 558
- copper chelate 557
- copper glycinate 557–8
- copper oxide 170  
 capsules 558
- copper sulphate 557, 568
- copper sulphide 552
- copra 265
- Coriaria* spp. 811
- 'corkscrew claw' 692
- corns 679
- coronavirus 642–3, 645–6
- corticosteroids 66, 67, 187, 480, 516  
 immunosuppression 187, 395, 432, 519  
 induction of calving 134, 214, 395, 431–2  
 ketosis treatment 519, 588  
 photosensitisation 588
- Corynebacterium* spp. 278, 343, 382  
*C. hovis* 398  
*C. pseudotuberculosis* *see Actinomyces pseudotuberculosis*  
*C. pyogenes* *see Arcanobacterium pyogenes*  
*C. renale* 278–80
- cottonseed 228, 229, 265, 266, 734
- Cotyledon orbiculata* 831
- cowdriosis 754–5
- cowpox 403, 404, 584–5
- Coxiella burnetti* 73–4, 607
- coxo-femoral luxation 701–2
- cranial nerves 300–2
- creatinine kinase (CK, formerly CPK) 60
- Crohn's disease 136, 142
- crossbreeds 3, 16  
 advantages of 8, 17, 24, 25, 734
- Crotalaria* spp. 264, 266, 588
- crownbeard (*Verbesina encelioides*) 811
- cryptorchidism 498
- cryptosporidiosis 72, 645, 651
- Cryptosporidium* spp. 72, 643, 645–6, 651, 823
- Culicoides* spp. 308, 470, 601, 725, 727, 736–7
- culling 9, 374, 474, 662
- Cupressocyparis leylandii* 477
- Cupressus macrocarpa* 462, 477
- Curvularia geniculata* 474
- cutaneous angiomatosis 586
- cutaneous horns 270, 590
- cutaneous hypopigmentation 774
- cutaneous lymphosarcoma 585
- 'cutaneous streptothricosis' 578

- cyanide poisoning 807–8  
 cyanocobalamin 568  
 cyanophyte (cyanobacterial) poisoning 809–11  
 cycads 338  
*Cycas* 338  
*Cyclorrhapha* 599  
*Cylindrospermopsis raciborskii* 810  
*Cymopterus watsonii* 588  
*Cynosurus echinatus* 262  
 cysticercosis 174  
*Cysticercus bovis* 174  
 cystitis 282  
 cytology 445–6
- Dairy Australia 4  
 dairy-beef cattle 27  
 dairy industry 1–12, 14  
 Dairy New Zealand 4  
 daisies
  - sunflower (*Wedelia asperima*) 266
  - woolly everlasting (*Argentipallium blandowskianum*) 266
- Dallas grass (*Paspalum dilatatum*) 337  
 Darling pea (*Swainsona* spp.) 84, 338–9  
 decoquinate 178  
 decubitus ulcers 590  
 deer 28, 135, 137, 151, 209, 261, 284  
 degenerative joint disease (DJD) 707  
 dehorning 199, 212, 235, 591, 592, 626, 843  
 dematophilosis 577–8  
 demodectic mange 592, 595  
*Demodex bovis* 577, 592, 593, 595  
 dermatitis 407–8, 580, 587
  - interdigital and digital 677
  - photodynamic 262–5
- Dermatophilus congolensis* 577–8  
 dermatophytosis *see* ringworm  
 dermatosporax 773–4  
 detergents 87–8, 815  
 Devon breed 763  
 dexamethasone 130  
 Dexter breed 768–9, 776  
 dextrose 516, 519, 650  
 diabetes mellitus 834  
 diaphragmatic hernia 122  
*Diaporthe toxica* 265  
 diarrhoea 127–81
  - bacterial causes 129–42
  - in calves 130–3, 640–54, 823
  - dietary mineral causes 553–4
  - parasitic causes 155–78
  - poisoning 178–9
  - viral causes 143–55
- Dicentra cucullaria* 588  
*Dichanthium fecundum* (curly blue grass) 730  
*Dichelobacter* spp. 679
  - D. nodosus* 677, 689
- dicoumarol poisoning 247, 590  
*Dictyocaulus viviparus* 191–4, 209  
 diet 255, 325, 476–7
  - in hot weather 734–5
  - milk fever control 528, 531
  - phosphorus requirements 539–40
  - sudden changes 89–90, 195, 207–8, 325, 519
  - trace mineral requirements 553, 561, 566, 568–72
- dietary cation-anion difference 242, 276, 505, 529–31  
 diffuse fibrosing alveolitis 208  
 digestibility of feeds 6, 20, 510, 536, 638  
 digital dermatitis 678–9  
 digital disorders 675–701  
 dihydrostreptomycin 287, 378  
 dihydroxycoumarin poisoning 247  
*Dilophospora alopecuri* 335  
 meso-2,3-dimercaptosuccinic acid (DMSA) 330  
 dimethyl disulphide 237, 289  
 dimethyl sulphoxide 247  
 disease outbreaks (epidemics) 54–60  
 displacement, abomasal *see under* abomasum  
 distal phalanx 692–4  
 distichium (*Paspalum distichium*) 337  
 diuretics 243, 245, 276  
 DNA testing 30, 761–3, 766–70 *passim*, 776  
 dock 560  
 dodecyl benzene sulfonic acid 373  
 dogs (as source of infection) 174–5, 471–3, 744, 833–4  
 dogwood poison bush (*Eremophila deserti*) 266  
 doramectin 166  
 dorsal retroflexion 116  
 downer cows 60, 321, 441, 542–8  
 drenching
  - bloat (rumen tympany) 86–7
  - checks and tests 167–8
  - 'clear' drenches 165, 166
  - combination/broad-spectrum drenches 166, 169
  - facial eczema control 270–1
  - injuries 212, 613
  - mineralised drenches 563
  - parasite control 30, 167, 785
  - rotation programmes 167
  - 'white' drenches 165, 166
- drug absorption 835–6  
 dry cow management 505–6  
 dry matter intake
  - fat cow syndrome 516
  - milk production and 5, 668
  - peri-calving needs 503–6
  - risks of low DMI 97, 467, 516
- drying-off 10–11, 345, 380–4, 391–2, 591–2  
 dung beetles 159  
 Dutchman's breeches (*Dicentra cucullaria*) 588  
 dwarfism 760, 768–9, 825  
 dysentery, winter 154  
 dysplasia 767–71, 774, 824
  - epidermal 772–3
  - hip 703
- dyspnoea 183–4, 192, 214–15  
 dystocia 126, 484–5, 547, 820–1, 823–4
- ear disorders 310, 625  
 ear-tag infections 591  
 East Coast fever (Africa) 753–4  
 echinococcosis 174–5, 256  
*Echinococcus granulosus* 174–5  
*Echinopogon* spp. 829  
*Echium* spp. 267
  - E. plantagineum* 264
- ectoparasites 592–607  
 ectopic heart 229  
 eczema, facial 267–71  
 effective neutral detergent fibre (cNDF) 84, 716  
 effluent disposal 11
  - human effluent 174
  - on pasture 130, 134, 137

- Ehlers-Danlos syndrome 773–4  
*Ehrlichia ruminantium* 754  
*Eimeria* spp.  
  *E. bovis* 175, 177, 323  
  *E. zuernii* 175–6, 177, 323  
Eisenmenger's syndrome 230  
ejaculation failure 495  
electro-ejaculation 486–8, 499, 501  
electrocardiography 218–19  
electrocution 815–16  
electrolyte imbalances and therapy 69–70, 275, 548–9, 648, 650–1, 846–7  
electrostimulation 546  
ELISA 140–1, 149, 233, 259, 455, 456, 618  
  A-ELISAs 322  
  antigen-capture ELISA (ACE) 148  
Ellangowan poison bush (*Eremophila deserti*) 266  
Ellinbank Research Centre, Victoria 11  
'Elso heel' 709  
embryo transfer 422–3  
embryonic mortality 452–4, 457–80  
emphysema 45, 192–3, 207–9  
encephalomyelitis 205, 308, 741–2, 833  
encephalomyelopathy, multifocal 764  
endectocides 166  
endocarditis 224–6  
endometritis 441, 443–8, 451, 478  
endoparasites 155, 173, 177  
endotoxaemia 66, 67, 84, 133, 442  
engorgement toxaemia *see* rumen acidosis  
enrofloxacin 196, 199, 842  
enteritis 127, 132, 135  
enterotoxaemia 136, 311–12, 795–7  
enzootic bovine leukosis (EBL) 232–5  
enzootic calf pneumonia 186–8  
enzyme-linked immunosorbent assay *see* ELISA  
eosinophils/eosinophilia/eosinopenia 65–6  
epidemics 54–60  
epidermal dysplasia 772–3  
epidermolysis bullosa 772–3  
epididymitis 499  
epinephrine 214  
epitheliogenesis imperfecta 772  
eprinomectin 163, 166  
*Equisetum arvense* (field horsetail) 325  
*Eremophila deserti* 266  
ergot 337–8  
  ergot alkaloids 478, 732  
  ergotism 587  
*Erodium moschatum* 588  
erythromycin 190, 376–80, 841  
erythron/erythrocytes/erythropoiesis 63–4, 721  
*Escherichia coli* 142, 224, 274, 279, 282, 308, 468, 640–1, 644–8, 655  
  as cause of mastitis 345, 377, 394–6  
  enterohaemorrhagic (EHEC) 72, 641, 644–7  
ethylenediamine tetra-acetate, sodium (Na-EDTA) 330  
examination of animals 37–53  
*Exophiala jeanselmei* 474  
exotic diseases 19, 21, 736–58  
  action to be taken 757–8  
eyes 616–25, 774, 775–6  
  examination 48, 300–2  
  strabismus 302, 764  
facial eczema 267–71, 557, 583, 786  
facial nerve 300–2, 314, 625–6  
facial paralysis 302, 313–15, 324, 626  
Factor VIII deficiency 767  
Factor XI deficiency 767  
faecal egg count (FEC) 159, 163–4, 167–8, 170, 259  
  faecal egg count reduction test (FECRT) 168  
faecal spore counts 269–70  
faeces 50–1, 58, 107–8  
*Fagopyrum esculentum* 588  
falling disease 228, 553  
Fallot, tetralogy/pentalogy of 230  
farcy 581  
*Fasciola* spp. 94–5  
  *F. hepatica* 130, 155, 256–61  
fasciolosis (liver fluke) 256–61  
fat cow syndrome 506, 513–17  
fat necrosis 47, 50, 125  
fatty acids 504–8  
  non-esterified (NEFA) 504  
  volatile (VFA) 80, 95–7, 505–7  
fatty liver 506–8, 513–17  
fawn calf syndrome 770  
febantel 173, 174  
feed  
  contamination 313, 320–1, 328, 467, 474–5  
  digestibility 6, 20, 510, 536, 638  
  management of change 519  
  nutrient values 6, 7  
  supply and demand data 6  
  toxicities 813–15  
  *see also* concentrate feeding; grain; supplementary feeds  
feeding systems 5–7, 11–12  
feedlots 18–19, 23, 170  
  gastrointestinal problems 86, 95  
  heat stress 733–5, 734–5  
  liver abscesses 255–6  
  respiratory diseases 189–90, 194–7, 199, 823  
feedpads 11, 664, 734  
femoral nerve paralysis 711  
femoro-tibial instability 704–5  
femur 701–2, 823–4  
fenbendazole 165, 174  
fermentation *see under* rumen  
ferns 325  
fertilisers 20, 560, 563  
  gypsum 829  
  manure and effluent 134  
  molybdenum 552  
  nitrogenous 20, 30, 86, 337  
  phosphate 297, 539–41  
  potash 505, 522, 539–41  
  slag and ash 179  
  zoonosis sources 70, 73  
fertility 8–9, 572  
  *Bos indicus* 16–17  
  breeds and 419  
  bulls 484–501, 570  
  Holstein-Friesian breed 3, 419  
  influence of growth rates 7  
  *see also* infertility  
fescue grasses 478, 732  
  fescue toxicosis/fescue foot 587  
*Festuca arundinacea* 478

- fetal disorders
- asphyxia/hypoxia 820–1
  - death/loss 460–80, 732
  - emphysema 126
  - goitre 477
  - infection 821
  - under-development 820
- fetal membranes 97–9, 126, 132
- retained (RFM) 449–51, 561
- fibre, dietary 666
- effective neutral detergent fibre (eNDF) 84
  - neutral detergent fibre (NDF) 666
- fibrin 115, 124–5, 132, 203
- fibrinogen 61–2
- fibroma 586
- fibrosarcoma 586
- flies 401, 598–604, 616, 755–7, 798
- flood plain staggers 336
- florfenicol 187, 196, 199, 842
- fluid therapy 846–7
- flukes (trematodes) 94–5, 155, 166, 256
- Calicophorum* spp. 94
  - Fasciola hepatica* 155, 256–61
  - Orthocoeilium* spp. 94
  - Paramphistomum* spp. 94–5
- flunixin meglumine 187, 843
- fluoroacetate poisoning 808–9
- fluoroacetamide (1081 compound) 808
  - monofluoroacetate (1080 compound) 808–9
- fluoroquinolones 842
- fluorosis 609–10
- fly ash poisoning 179
- flystrike 592, 600–1
- focal premature physeal closure 824
- 'fog fever' 207–8
- folic acid (vitamin B<sub>9</sub>) 574
- follicular mange 592, 595
- foot and leg disorders
- deep digital structures 692–4
  - digital dermatitis 678–9
  - examination 51, 669–72
  - genetic 770–1
  - incidence 9, 660–1
  - see also* claw disorders; lameness
- foot-and-mouth disease 584, 739–41
- footrot 675–7
- see also* strawberry footrot
- forage crops 5, 11, 14, 84–5, 96–7, 207–8, 258, 264, 293
- foreign bodies 47, 48, 90, 92, 213
- in eye 624
  - in nostril 616
  - in oral cavity 212, 613–14
- formalin poisoning 829
- founder 686–9
- fractures 693–4, 703, 705
- framycetin 841
- freemartins 480–1
- French honeysuckle (*Galega officinalis*) 811
- Friesian breed 24, 30, 781–2
- anthelmintic resistance in 31
  - beef bulls 23, 27
  - genetic disorders 267, 763
  - see also* Holstein-Friesian breed
- frothy bloat *see* bloat (rumen tympany)
- fruit wastes as feed 11, 80
- fungal pneumonia 206–7
- fungi 191, 206–7, 265, 267, 275, 335, 337, 399, 732
- as abortion causes 474–5, 477
  - endophytic 298, 333–4, 478
  - skin diseases 581–2, 587–8
  - spore counts 269–70
  - in worm control 31, 170, 194
  - see also* mycotoxins
- fungicides 266, 270
- furazolidone 821–2
- furocoumarin 588
- furosemide 243
- Fusarium* spp. 478, 591, 833
- F. solani* 209
- Fusobacterium necrophorum* 186–7
- caudal vena cava thrombosis 202
  - foot disease 675–8
  - laryngeal necrobacillosis 188
  - liver disease 255–6, 794
  - neurological disease 312
  - oral necrobacillosis 657–8
  - phlegmonous cellulitis 615
  - in rumen 255–6
  - teat lesions 403
  - uterine infection 441, 444, 468
- gait 302–3, 554
- β-galactosidase 339
- Galega officinalis* 811
- Galloway breed 299, 769–70, 774
- gamma glutamyl transferase (GGT) 253, 259, 264
- gamma-interferon test 139, 210
- Gammaherpesviridae 151
- gangrene 132
- gases 42, 46–7, 76, 93, 96–101
- see also* bloat (rumen tympany)
- gastrocnemius muscle 707–8, 713
- gastrointestinal disorders 69
- calves 637–9
  - disease transmission 20
  - heifers 785
  - parasitic gastroenteritis 30, 155–71
- gastrointestinal tract
- examination 75–9
  - neoplasms 122
- Gastrolobium* spp. 808
- genetic defects/disorders 759–76, 824
- abdomen 658
  - cardiovascular system 227–31, 766–7
  - claws 691
  - eyes 774, 776
  - lameness 668, 717
  - neoplasms 245
  - reproductive system 476
  - skin 772–5
- genetics
- evaluation systems 30, 88
  - facial eczema tolerance 271
  - herd characteristics 7
  - markers 29–30
  - screening tests 761–2
  - tropically adapted breeds 16, 720
- genital campylobacteriosis 453–7
- genital tract
- abnormalities 480–2
  - lesions 482–3
  - tumours 483

- Georgina gidyea (*Acacia georginae*) 808  
 Giardia spp. 647, 823  
 Gidgee tree (*Acacia georginae*) 808  
 globulins 61  
 glomerulonephritis 275  
 glossopharyngeal nerve 300, 302  
 glucagon 508–9  
 glucocorticoids 516  
 gluconeogenesis 507  
 glucose  
   blood 68, 249, 274, 276, 339, 508–22 *passim*  
   demand peri-calving 504 10  
   in oral fluid therapy 649  
   in urine 276, 297  
 glucose-6-phosphate dehydrogenase 290  
 β-glucosidase 339  
 glutamate dehydrogenase (GDH) 252, 259, 264  
 glutathione peroxidase (GPX) 290, 559, 561–2  
*Glyceria declinata* 807  
 glycerol 372, 507  
 glycogenesis 228, 765–6  
 glycosides 338, 568, 569, 807–8  
 GM1 gangliosidosis 763  
 goat's rue (*Galega officinalis*) 811  
 goitre/goitrogens 568–9  
 gonadotrophin releasing hormone (GnRH) 424–6, 429–30, 435–40, 447, 452–3  
 gonadotrophins 418, 422, 424–6, 429–30, 435–6  
 gossypol 228, 266  
 grain feeding 2–3, 256–7  
   risks in 86, 95, 201  
 grain overload/grain poisoning *see* rumen acidosis  
 granulocytopenic disease 821–2  
 granulomas 48, 139, 182, 206, 210, 211  
 grass staggers *see* hypomagnesaemia  
 grass tetany 533–7, 720  
 grass trees (*Xanthorrhoea* spp.) 339  
 grasses 6–7, 293  
   *Echinopogon* spp. 829  
   Mitchell grasses (*Astrelba* spp.) 730–1  
   toxicity potential 96, 242, 247, 253, 263, 804  
   *see also* kikuyu grass; ryegrass  
 grazing management 6, 18, 373  
   in beef finishing 27  
   bloat control 88  
   for *Brassica* crops 239, 289, 806–7  
   for nitrate poisoning prevention 806–7  
   parasite control 167  
   rotational systems 20, 194  
   Ruakura system 167  
   seasonal systems 9–11, 26  
   spread stocking 167  
 greenhouse gas emissions 30  
 growth rates 7, 778–82  
 Guernsey breed 521, 591, 774, 824  
*Guggenheimella bovis* 679  
 gypsum fertiliser poisoning 829  
  
 haemangioma 245  
 haemangiosarcoma 245–6  
*Haemaphysalis* spp. 291  
   *H. longicornis* 291, 607, 753  
*Haematobia irritans exigua* 592, 607–4  
 haematology 62–7, 237  
 haematomas  
   penile 488–90  
   subcutaneous 590  
*Haematopinus* spp. 597  
   *H. eurysternus* 597–8  
   *H. quadrypertusus* 597  
   *H. tuberculatus* 596–7  
 haematuria 281–2  
 haemoglobinuria 281, 283  
   bacillary 256, 259, 290  
*Haemonchus* spp. 155, 157, 159, 168  
   *H. contortus* 62, 242  
   *H. placei* 159, 729–30  
 haemophilia 767  
*Haemophilus somnus* *see* *Histophilus somni*  
 haemorrhage 61, 64, 240, 251, 767, 818  
   abomasal 107–8  
   with caudal vena cava thrombosis 201–2  
 haemorrhagic bowel syndrome *see* jejunal haemorrhage syndrome  
 haemorrhagic enteritis, acute *see* jejunal haemorrhage syndrome  
 haemorrhagic enterotoxaemia 311–12  
 haemorrhagic septicaemia 751–2  
 haemorrhagic uraemic syndrome (HUS) 72  
 hair coat abnormalities 42, 72, 227–8, 408, 554, 591  
   congenital 773–5  
 hairy footwart 678–9  
 'hairy vetch' (*Vicia villosa* Roth) 275  
 head, examination of 48  
 heart 123, 224–31  
   congenital defects 229–31, 766  
   examination 43–4, 53, 216–19  
 heartwater 754–5  
 heat *see* temperature  
 hedgehogs (as source of infection) 284  
 heel conditions 685  
   erosion 688  
   warts 678–9  
 heifers 123  
   calving 27, 121, 282, 547, 780–2  
   mastitis in 400–1  
   rearing 778–86  
   susceptibilities 204, 785  
   weight and fertility 7, 781–2  
 Heinz bodies 63, 237, 289–90, 561  
*Helichrysum blandowskianum* 266  
*Helicobacter* spp. 107  
*Heliotropium* spp. 267  
   *H. europaeum* 264  
 helminth larvae 20  
 hemimelia 769–70  
 hepatic encephalopathy 249, 513  
 hepatic lipidosis 512–17  
 hepatitis 74, 254–61  
   bacterial 84, 255–6, 792–5  
 Hereford breed 25, 227–9, 307, 585, 621, 625, 760–75 *passim*, 824  
 Hereford crosses 25  
 hernias 636  
   diaphragmatic 122  
   umbilical 658  
 herpesviruses 151–3, 299, 742  
   *see also* bovine herpesvirus  
 hexachloroethane 262  
 hide damage 592, 596–8, 602, 604, 757, 775  
 hindlimbs: bovine asymmetric hindlimb paresis 825

- hip clamps 527, 546
- hips
- dislocation 701–2
  - dysplasia 703
- histopathology 210, 314, 463, 577, 797
- histophilosis 189–90, 467
- Histophilus* spp. 189, 377
- H. somni* 186, 187, 189–90, 195, 227, 299, 310, 467, 499, 839
- Holstein-Friesian breed 2, 3, 8, 30, 521, 528
- carcinoma of eye and lids 585, 621, 623
  - fat cow syndrome 513
  - fertility 416, 419, 437, 444
  - genetic disorders 227, 229, 231, 684, 762, 764, 766–75
    - passim*, 824
    - atresia coli in calves 120, 776
  - growth rates 7, 419, 780–2
  - lameness 668, 680, 684, 695, 770
  - North American Holstein breed 8, 30, 684, 776
  - umbilical hernias 659
- Holstein-Friesian x Jersey 8, 30, 485
- hoof testers 671–2
- hookworms 155, 729–30
- hormonal deficiencies 478
- hormones
- anti-diuretic 274, 293
  - in energy balance 508–9
  - reproductive 424–30, 506
- Horner's syndrome 339
- horns 591, 626
- horsetails (plants) 325
- housing (of cattle) 12, 137, 187, 188
- calves 633–4
- human immunodeficiency virus (HIV) 235
- humans (as source of infection) 174, 642, 833
- hydatid disease 174–5, 256
- hydrallantois 126
- hydramnios 126
- hydrochloric acid 531
- hydrocyanic poisoning 807–8
- hydronephrosis 281
- hydrops fetalis 776
- hydrothorax 123, 213
- $\beta$ -hydroxybutyrate 62, 509
- hydroxycobalamin 568
- hyena disease 824
- hyoscine-n-butyl 105, 110
- hyperbilirubinaemia 236, 253, 272
- Hypericum perforatum* 251, 263, 588
- hyperkalaemia 549
- hypermagnesaemia 278
- hypermctria 302
- hyperphosphataemia 278
- hyperthermia 479, 732, 816–17
- hyphaema 624
- hypoalbuminaemia 61, 123, 278
- hypocalcaemia 84, 97, 199–200, 271, 503–5, 516
- dietary control 528–32
  - downer cows and 541–5
  - non-parturient hypocalcaemia 532
  - parturient 520–32
- hypochloraemia 69, 99, 103–4, 106, 218, 549
- Hypoderma* spp. 601–2, 756–7
- hypoglobulinaemia 61
- hypoglossal nerve 302
- hypoglycaemia 648–50
- hypokalaemia 549
- hypomagnesaemia 523, 532–8, 720
- control 536–7
- hypometria 302
- hypomyelinogenesis 306–7
- hyponatraemia 549
- hypophosphataemia 538–41
- hypopigmentation 774
- hypoproteinaemia 123
- hypotrichosis 774–5
- hypovitaminosis A 328
- ichthyosis 775
- identification schemes
- Australian 20–1
  - New Zealand 28–9
- L-idoitol dehydrogenase (IDH) 60
- ileus *see* paralytic ileus
- imidazothiazoles 164–66
- imidocarb diprionate 725
- immune system 511
- see also* immunosuppression
- immunoglobulins (Ig) 61, 345, 628–30
- immunohistochemical (IHC) staining 148
- immunosuppression 195, 291, 506, 573
- from BVDV 143–4, 151, 186
  - copper status 553
  - from corticosteroids 395
  - from lead 329
  - peri-calving 391, 506
  - from selenium deficiency 559
- impaction
- abomasal 94, 108–9
  - omasal 122
  - rumen 96, 638
- InCalf study 415
- incisors 609
- indigestion 89–90
- see also* vagus indigestion
- induction of calving 214, 395, 421, 430–3, 450–1, 512
- infectious abortus *see* brucellosis
- infectious bovine keratoconjunctivitis (IBK) 616–19
- infectious bovine rhinotracheitis (IBR) 204–6, 458
- infectious pustular balanoposthitis (IPB) 204–6
- infectious pustular vulvovaginitis (IPV) 204–6
- infertility
- in bulls 488–501, 559
  - congenital abnormalities and 480–2, 498
  - dietary mineral intake 540, 554, 559, 561
  - repeat breeders 451–3
  - uterine infections and 441, 443, 445–6, 450
  - venereal diseases and 454–5, 457–60
  - viral infections and 469
- inflammatory disease
- haematology 67
- inherited disorders *see* congenital defects; genetic defects
- insulin 508–9, 516–17, 519, 834
- insulin-like growth factor-I (IGF-I) 508, 769
- interdigital dermatitis 677
- interdigital fibroma/granuloma 679
- interdigital necrobacillosis 675–7
- interdigital phlegmon 675–7
- interdigital skin hyperplasia 679
- intestinal tympany *see* paralytic ileus
- intestines
- atresia 776

- intestines (cont'd)  
 incarceration 118  
 intussusception 111  
 neoplasms 122  
 phytobezoars 114–15  
 ultrasound examination 52  
 volvulus 47, 105, 109, 115  
 intraluminal intestinal haemorrhage syndrome *see* jejunal haemorrhage syndrome  
 intubation 82  
 iodate, potassium 569  
 iodide, potassium 569  
 iodide, sodium 842  
 iodine-based germicides 372–4, 393, 448, 458  
 iodine deficiency 477, 559, 568–70  
 iodism 587  
 ionophores 178, 208, 228, 520  
*Ipomoea* spp.  
   *I. batatas* 209, 833  
   *I. spp. aff. calobra* 339  
 iritis 620  
 iron 552–3, 570  
   deficiency 236–7  
 irrigation 2, 3, 30  
   effects on parasite larvae 158–9, 257  
*Iseilema* spp. (Flinders grass) 730  
 ivermectin 95, 166, 194  
*Ixodes* spp.  
   *I. holocyclus* 606  
   *I. ricinus* 752  
 Japanese Black breed 227, 229, 774  
 jaundice 236, 250, 251  
 jaw 610–13  
   mandibular fractures 614  
 jejunal haemorrhage syndrome (JHS) 112–13  
 Jembrana disease 235  
 Jersey breed 3, 8, 30, 245, 485, 528, 591, 768–70, 774, 824  
   disease susceptibility 138, 211, 306, 521, 526, 558  
   growth rates 7, 781–2  
   heat tolerance 732, 734  
 Johne's disease (paratuberculosis) 9, 137–42, 167, 720  
 joint infections 190  
 Jumbo-grass 804  
*Juniperus communis* 477  
 kale 289, 540, 804  
 kangaroos (as source of infection) 256  
 keratin 343–4, 348, 375, 574  
 keratoses 590, 773  
 keratotic lesions 590  
 ketamine 845  
 ketoprofen 187, 843  
 ketosis (acetonemia) 503–10, 517–20  
   abomasal displacement and 97–9, 103  
   ketonuria/ketonaemia 62, 276, 506, 517  
   metabolic profile tests 62  
   periparturient diseases and 375  
 kidneys 50, 53, 62, 274–87  
   amyloidosis 280–1  
   downer cows 542  
   haematuria 281–2  
   haemoglobinuria 283, 289–90  
   leptospirosis 283–9  
   nephritis 274–5  
   pyelonephritis 278–80  
 kikuyu grass (*Pennisetum clandestinum*) 6, 96, 804, 812  
*Klebsiella* spp. 394–5  
   *K. pneumoniae* 345, 373  
 Klinefelter's syndrome 498  
 kumara 833  
 laboratory tests 38, 60–70  
 $\beta$ -lactam antibiotics 838–9  
 lactate (lactic acid) 80–1, 84, 255, 507  
 lactic acidosis *see* rumen acidosis  
*Lactobacillus* spp. 80, 207  
 lactoferrin 345  
 lactogenic bacteria 80, 83  
 lameness 574, 660–717, 823–5  
   behaviour 663, 683  
   control and prevention 713–17  
   cost 661–3  
   digital conditions 675–701, 814  
   examination 669–72  
   genetics 668, 717  
   in herds 674–5  
   incidence 660–1  
   nutrition 665–7  
   'scoring systems' 675–6  
   silage and 667, 716  
   track and concrete surfaces 664–5, 714–16  
 laminitis 686–9  
 lantana poisoning 263  
*Lantana* spp. 588  
   *L. camara* 263  
 laparotomy, exploratory 77–80, 92  
 larynx  
   laryngeal necrobacillosis 188–9  
   papillomatosis 213  
   stenosis 212  
 lasalocid 84, 178, 208, 716  
 lead poisoning 328–31, 801  
 leg mange 592, 593  
 legumes  
   bloat and its control 88  
   selenium content 560  
 leiomyoma and leiomyosarcoma 122  
 lentivirus 235  
*Lepidozamia* 338  
*Leptospira* spp. 72–3, 274, 283–9, 465–6, 476  
   *L. borgpetersenii*  
     *L. Hardjobovis* 283–9, 465  
     *L. interrogans* 399  
     *L. Copenhageni* 283–8, 589, 631  
     *L. Pomona* 283–8, 465  
 leptospirosis 72–3, 283–9, 465–6  
 leucaena (*Leucaena leucocephala*) 587, 625, 829–30  
 leukocytes/leukocytosis/leukopenia 64–7, 225  
 leukosis 231–5  
   enteric 154  
 levamisole 31, 165–6, 173  
 Leyland cypress 477  
 LIC (formerly Livestock Improvement Corporation) 4, 29, 420  
 lice 592, 596–8  
 lick blocks 87, 563  
 lifting devices 527, 546–7  
 ligament ruptures 705  
 lightning strike 815–16  
 lignocaine 845  
 limax 679

- Limousin breed 24, 25, 764, 767, 771  
 lincomycin 378  
*Linognathus vituli* 597  
 lipids 375–7, 504–5, 507–8, 510, 513, 517, 565  
 lipomatosis 125  
*Listeria* spp. 467  
   *L. monocytogenes* 73, 299, 313, 467, 620  
 listeriosis 73, 313–16, 467  
 live cattle exports 17  
 liver 123, 248–54  
   abscesses 52, 201, 255–6  
   bacterial diseases 255–6, 792–5  
   biopsy 254, 515, 555–6  
   examination 47, 60–2, 80, 249–54, 561, 571  
   fatty liver 97, 252, 265, 272, 506–8, 513–17  
   fibrosis 249, 264–5  
   parasitic diseases 256–61  
   toxic agents 262–71  
   *see also* cirrhosis  
 liver fluke 256–61, 721, 795  
 Livestock Improvement Corporation [New Zealand] *see* LIC  
 Livestock Production Assurance (LPA) [Australia] 21  
 lolitrem B 298, 333–4  
*Lolium* spp. *see* ryegrass  
 lucerne 263  
   hay 85  
   pellets 84  
   selenium content 560  
*Lucilia* spp.  
   *L. cuprina* 600–1  
   *L. sericata* 600  
 lumpy jaw *see* actinomycosis  
 lumpy skin disease (LSD) 585, 742–3  
 lungs  
   abscesses 200–1  
   alveolar disorders 213  
   anaphylaxis 214  
   examination 44–5, 185  
   *see also* pulmonary entries; respiratory tract  
 lungworm disease 191–4  
 lupin poisoning 265–6, 573, 589  
*Lupinus* spp. 265  
   *L. albus* 573  
 luteal failure 478  
 Lyme disease 227, 752–3  
*Lymnaea* spp.  
   *L. columella* 257, 261  
   *L. tomentosa* 257–8  
   *L. viridis* 257  
 lymph nodes 47, 53, 220–1  
 lymphatic obstruction 123, 241–3  
 lymphocytes/lymphocytosis/lymphopenia 64–8, 231–5  
 lymphosarcoma 93, 122, 231, 233–4, 272  
  
 macrocarpa 477  
 macrocyclic lactones (ML) 30–1, 164–6, 168, 170  
 macrolides 376–8, 841–2  
*Macrozamia* 338  
 ‘mad itch’ 741–2  
 magnesium 83, 293, 296  
   metabolism 70, 434, 523, 531, 532–8  
 magnesium chloride 531, 536  
 magnesium hydroxide 83, 90  
 magnesium hypophosphite 525  
 magnesium oxide 83, 90, 130, 134, 536–8  
 magnesium sulphate 89–90, 529–32, 536–8  
 magnesium trisilicate 83  
 magnets, reticular 92, 223  
 Maine-Anjou breed 823  
 maize silage 3, 11, 80, 195, 573  
 malignant catarrhal fever (MCF) 151–4, 282  
 malignant oedema (pseudo-blackleg) 788–92  
*Mallophaga* 592  
 malnutrition 510–12  
 mamillitis 404–5  
 manganese 572–3  
 manganese sulphate 572  
 mange 593–5  
*Mannheimia* spp. 197, 224, 310  
   *M. haemolytica* 144, 186, 194–9, 655, 839  
 mannitol 243  
 mannosidosis 299, 338–9, 761, 763  
 maple syrup urine disease 762–3  
 mapoon (*Morinda reticulata*) 564, 587  
 marbofloxacin 187, 199, 842  
 Marfan syndrome 771  
*Marsilea drummondii* (Nardoo fern) 325  
 mastitis 190, 340–409  
   antibiotic treatment 375–84  
   coliform 394–6  
   dry cow therapy (DCT) 380–4, 397  
   heritability 347  
   incidence 5, 9, 341, 346–9  
   staphylococcal 384–8  
   streptococcal 388–94  
   tuberculous 210, 399  
   uncommon bacterial causes 397–9  
 Meat and Livestock Australia 20–1  
 Meat and Wool New Zealand 29  
 mebendazole 174  
 melaena 107–8  
 melanoma 586  
*Melilotus alba* 247, 590  
 meloxicam 187, 843  
 meninges 308–12  
 meningitis 299, 308–10  
 meningoencephalitis 189, 308, 313  
   *see also* thromboembolic meningoencephalitis (TEME)  
 mercury poisoning 179, 297  
 mesentery 47, 109–11, 115  
 mesonephric ducts 482, 499  
 mesothelioma 123, 213, 231  
 metabolic disorders 503–50  
   of calves 648  
   incidence 9, 20  
 metabolic profile tests 509–10  
 metabolisable energy (ME) 6, 20  
   deficiency syndromes 506, 510–20  
 metal objects *see* foreign matter  
 metallo-proteinases (MMP) 687–8  
 metaphyseal dysplasia 770  
 methane 2, 30, 87, 97  
 methionine 516, 560, 565, 567–8, 571–2, 813  
 S-methyl-L-cysteine sulfoxide (SMCO) 237  
 methylcobalamin 565  
 methylene blue 805  
 3-methylindole (3MI) 207  
 metmizole 117  
 metoclopramide 89  
 Metricheck device 445, 448  
 metritis 97, 440–3  
*Micrococcus* spp. 224

- Microcystis* spp. 809–10  
*Microsporium* spp. 72, 581  
midges 308, 470, 601, 725–7, 736–7  
milbemycins 164–5, 166  
milk  
  as calf feed 631–2  
  electrical conductivity testing 358–9  
  examination (on-farm) 49, 353, 355–6, 355–9  
  foremilk stripping 369–70  
  fat percentage 3  
  laboratory testing 359–60  
  see also bulk milk sampling; Rapid Mastitis Test; somatic cell counts  
milk allergy 591  
milk fever see hypocalcaemia  
milk replacers 115, 134, 141, 265, 293, 591, 631–2, 821, 822  
milk yield 3, 5–6, 8  
  decrease during illness 163, 662  
  under heat stress 732  
  heifer liveweight and 782  
  heritability 347  
milker's nodules 73  
milking 4–5, 344–5, 353–6, 362–73  
  assessment procedures 362–6  
  in high temperatures 734  
  machine milking 342, 348–9, 363–70, 401–2, 592  
  management of cows 715–16  
  robotic 12  
millet 804  
mimosine 587, 829  
MINDA identification system 29  
Mitchell grasses (*Astrelba* spp.) 730–1  
mites 577, 593–5  
moisture content (of feeds) 85–6, 534  
molars 609, 612  
molasses 325, 339, 520, 536, 566  
molybdenum 552, 553–4  
monensin 87, 141, 178, 208, 516, 716  
  toxicity 228  
*Moniezia* spp. 155, 173–4  
  *M. benedeni* 173  
  *M. expansa* 173  
monocytes/monocytosis 66  
monofluoroacetate, sodium (1080 compound) 808–9  
morantel 165  
*Moraxella* spp. 616  
  *M. bovis* 600, 616–19  
*Morinda reticulata* 564, 587  
*Mortierella wolfii* 206–7, 474–6  
mosquitoes 727, 742, 745  
motor neuron disorders 303–6  
moulds 89, 209, 247, 263, 265, 399  
mouth 48, 608–15  
moxidectin 164–6  
*Mucor* spp. 247, 477, 638  
mucosal disease 143–8, 150–1, 585  
mucous membranes, examination of 41, 219–20  
'mule foot' 770  
*Multiceps (Taenia) multiceps* 174  
Murray Grey breed 299  
*Musca vetustissima* 599  
muscle disorders 60–1  
  congenital disorders 765–6  
  downer cows 542, 545  
  nutritional muscular dystrophy (white muscle disease) 559–63  
  musculoskeletal system 823–5  
  examination 51  
  musky storks-bill (*Erodium moschatum*) 588  
*Mycobacterium* spp. 210, 227  
  *M. avium* 71, 210  
  *M. bovis* 28, 71, 209–10, 399  
  *M. fortuitum* 581  
  *M. kansasii* 581  
  *M. paratuberculosis* 71, 136–42, 210  
*Mycoplasma* spp. 340, 378, 398–9, 460, 468  
  *M. bovis* 186, 310, 398  
  *M. mycoides* subsp. *mycoides* 651, 750–1  
  'mycotic dermatitis' 578  
mycotic infections  
  abortion 474–5  
  pneumonia 206–7  
  rumenitis 84  
  see also ringworm  
mycotoxins 478, 730  
myeloencephalopathy, bovine progressive 765  
myiasis 592, 600  
  screw-worm and warble fly 755–7  
myocardial infarction 190  
myocarditis 226, 227–9  
myoclonus 763–4  
myoglobinuria 60–1  
myophosphorylase deficiency 766  
*Myoporum* spp. 266–7  
  *M. laetum* 589  
myositis, clostridial 788–92  
Nardoo fern 325  
nasal granuloma (nasal catarrh) 48, 182, 211  
nasal passages 186–7, 197, 616  
  examination 48  
  nasal swabs 205  
  swabs 184  
  tumours 213  
National Bovine Tuberculosis Pest Management Strategy [New Zealand] 209  
National Livestock Identification Scheme (NLIS) [Australia] 21  
navel infections 654–7  
necrotic hepatitis see black disease  
necrotic stomatitis 188, 657–8  
Neethling virus 742–3  
*Nematocera* 598–9  
nematodes 155–73, 335–6, 625, 729–30  
  control programmes 30–1, 164–71  
  effects on adult cows 159–63  
  toxocarosis 172–3  
  see also parasitic gastroenteritis; refugia parasite control concept  
*Nematodirus helvetianus* 168  
neomycin 378, 841  
neoplasia  
  brain 310–11  
  cardiovascular system 231, 245–6  
  cutaneous 585–6, 625  
  eyes 621–4  
  gastrointestinal tract 122  
  liver 272  
  reproductive tract 483–4, 495–6, 499  
  respiratory tract 213  
  urinary tract 281, 292  
*Neospora caninum* 144, 463–5, 469, 471–4

- neosporosis 471–4  
neostigmine 117  
*Neotyphodium* spp.  
  *N. coenophialum* 587, 732  
  *N. lolii* 298, 333–4  
nephritis 273, 274–5  
*Neptunia amplexicaulis* 564, 587  
*Nerium oleander* *see* oleander 812  
nerve blocks 674  
nerves  
  cranial 300–2  
  peripheral 305, 709–13  
  spinal 303–5  
nervous system, examination of 299–306  
netobimin 174  
neurological diseases 312–39  
  coenurosis 174  
  congenital/genetic 762–5  
  in neonatal calves 306–12  
neurotoxins 298, 335  
neutral detergent fibre (NDF) 6, 504–5, 666, 716, 784  
neutrophilia/neutropenia 64–7  
New Zealand Veterinary Association 289, 623, 717  
ngaio (*Myoporum laetum*) 266, 589  
niacin (vitamin B<sub>3</sub>) 574  
nightshade (*Solanum nigrum*) 830–1  
nitrate/nitrite poisoning 477–8, 803 7, 832  
nitrogen  
  in feedstuffs 20, 195  
  *see also* fertilisers, nitrogenous  
*Nocardia* spp. 210, 398  
  *N. farcinica* 581  
*Nodularia spumigena* 809–10  
nodule worms 729  
non-esterified fatty acids (NEFA) 504, 507–11, 515–17, 573  
non-steroidal anti-inflammatory drugs (NSAID) 119, 133,  
  187, 196, 199, 442, 842–3  
noogoora burr (*Xanthium occidentale*) 266, 811  
novobiocin 378  
nutrients  
  in feeds 6–7  
  in pasture 20  
  as pollutants 11, 12  
nutrition  
  demand at calving 503–6  
  herd examinations 57–8, 509  
  lameness and 716–17  
  reproduction and 418–19  
  for weaners 784–5  
nutritional haemoglobinuria 289  
nutritional muscular dystrophy (white muscle disease) 559–63  
  
oak poisoning 296–7  
obturator nerve paralysis 712  
ocular coloboma 775–6  
oedema 123, 126, 241–5, 251  
  malignant (pseudo-blackleg) 788–92  
  pulmonary 207–9  
  rectal 120  
  udder and teats 242–5  
*Oesophagostomum radiatum* 155, 729  
oesophagus 86, 121, 146, 637–8, 757  
  obstruction 88–9, 615  
oestradiol esters 427, 447  
oestrus  
  anovulatory anoestrus 433–6  
  detection 416–7  
  oestrous cycle 424–30, 453  
  sub-oestrus 437  
  synchronisation regimens 426–30, 436, 437, 484  
oils as bloat treatment 86–7  
oleander (*Nerium oleander*) 228, 812  
oleandomycin 378  
omasum 40, 93, 96, 322, 636, 812  
  impaction 122  
omentopexy 101  
omphalitis 53  
onion grass/onion weed (*Romulea rosea*) 114  
onions (*Allium* spp.) 237, 239, 290, 568  
*Onthophagus* spp. (dung beetles) 159  
oocysts 175–8, 471–2, 643, 651, 823  
opiates 652  
optic nerve 302, 328  
oral fluid therapy 649–51  
oral necrobacillosis 188–9, 657–8  
orchitis 496–7  
organic livestock production 171  
organic sources of minerals 557, 564, 717  
organophosphates 298, 802–3  
*Orthocelium* spp. 94  
*Orthopoxvirus* spp. 403  
osteitis of distal phalanx 693  
osteoarthritis 707  
osteochondrosis 707  
osteogenesis imperfecta 769  
osteomalacia 539–40  
osteopetrosis 770  
osteophagia (bone chewing) 320, 539  
osteoporosis 539  
*Ostertagia* spp. 31, 168, 721  
  *O. ostertagi* 30, 155–65, 785  
ostertagiosis 62, 160–6  
  Type II 127, 160–2, 164–5, 785  
  *see also* parasitic gastroenteritis  
otitis 190, 310, 595  
  otitis externa 625  
  otitis media 310, 625  
ovaries 482–4  
  in anoestrus 434, 436  
  ovarian cysts 438–40  
ovine herpesvirus 2 (OvHV-2) 151–3  
Ovsynch programmes 430, 435  
oxalates 297, 532, 832  
*Oxalis pes-caprae* (sour sob) 297  
oxfendazole 163, 173, 174, 260  
oxyclozanide 95, 260  
*Oxylobium* spp. 808  
oxytetracycline 132, 190, 196, 199, 442, 447, 840–1  
*Oxytropis* spp. 587  
  
palate, cleft 608  
palm kernel meal 3, 552  
palpation 46–7  
palpebral reflex 301  
*Panicum* spp. 263, 588  
papillomas/papillomatosis 213, 495–6, 582–4  
papillomatous digital dermatitis 678–9  
papillomaviruses 406, 495, 582–3, 585  
  Type 2 240  
‘papple’ syndrome 93  
paracentesis *see* abdominocentesis; rumenocentesis  
paraffin oil 86, 117

- Parafilaria* spp. 757  
 parafilarosis 758  
 parainfluenza virus 3 (PI3) 186, 194–5, 471  
 paralysis tick 606  
 paralytic ileus (intestinal tympany) 52, 119, 124  
 paramesonephric ducts 480–2  
 paramphistomosis 94–5  
*Paramphistomum* spp. 94–5  
 parapox viruses 73, 403, 584  
 parasites  
   external 592–607, 721–5, 755–7  
   internal 30, 64, 155–65, 175–8, 242, 471, 4, 643, 729, 30, 785, 833–4  
 parasitic bronchitis 191–4  
 parasitic gastroenteritis 30, 155–71  
   causal organisms 155–6  
   control programmes 168–71  
     anthelmintic resistance 168–9, 171  
     refugia concept 169–70  
   development of larvae 156–9  
   diagnosis 163–5  
   treatment 164–6  
 parasitic pneumonia 191–4  
 paratuberculosis *see* Johne's disease  
 paravaccinia *see* pseudocowpox  
 paresis 303, 312  
   parturient 520–32, 542  
   spastic 709  
 parovarian cysts 482  
 paspalum grasses (*Paspalum* spp.)  
   staggers 337–8  
*Pasteurella* spp. 197, 199, 224, 310  
   *P. multocida* 186, 195, 197, 751–2, 839  
 pasteurisation 71, 73–4, 142, 209, 265, 394, 657, 749, 800  
 pasture 334, 559–60  
   new cultivars 20  
   *see also* grazing management; ryegrass  
 pasture bloat *see* bloat (rumen tympany)  
 patellar luxations 703–4  
 Patterson's curse (*Echium plantagineum*) 264  
 PCR *see* polymerase chain reaction  
 peat scours 552, 553–4, 557  
 pediculosis 592, 596  
 pelvic fractures 702–3  
 penethamate hydriodide 839  
 penicillins 136, 190, 838–9  
   amino/broad-spectrum 377, 442, 839  
   benethamine 839  
   benzathine 196, 618, 791, 839  
   benzyl 73, 83, 246, 377  
    $\beta$ -lactamase-resistant 377, 839  
   long-acting 791, 839  
   mastitis treatment 376–7  
   natural 838–9  
   penethamate hydriodide 376–7  
   *see also* procaine penicillin  
*Penicillium* 247, 474  
 penis 488–96  
   penile amputation 295  
*Pennisetum clandestinum* *see* kikuyu grass 812  
 pepsinogen 62, 160–1, 164  
*Peptococcus indolicus* 397  
*Peptostreptococcus* spp. 675  
 percussion 46, 47, 75–6  
 percutaneous tacks 99–101  
 pericarditis 90–2, 221–3  
 pericardiocentesis 92, 218  
 perilla ketone toxicity 209  
 peritoneum  
   peritoneal fluid 77  
 peritonitis 41, 77, 90–4, 106–8, 123–5, 255–6, 639  
   *see also* traumatic reticuloperitonitis  
 peroneal nerve paralysis 713  
 pessaries, antibiotic 447, 450  
*Phalaris* spp.  
   myocardial disease 228  
   phalaris toxicity 336–7  
 'phantom cows' 436, 7  
 pharmacokinetics 836–7  
 pharyngeal trauma and obstruction 212, 613–14  
 phenothiazine 294, 843–4  
 phenylbutazone 843  
 phlebitis 246  
 phlegmona interdigitalis 675–7  
 phlegmonous cellulitis 614–15  
 phomopsin poisoning 265–6  
*Phomopsis leptostromiformis* 265  
 phosphorus 6–7, 70, 289–90, 293, 296, 320, 434  
   metabolism 503–4, 538–41  
   milk fever and 523, 531  
 photosensitisation 251, 263, 266–9, 433, 588–90, 767  
 phylloerythrin 251, 407, 588  
 physometra 99, 105  
 phytobezoars 109, 114–15  
 phytoporphyrin 251, 407, 588  
 pica 290, 320, 539–41, 566  
 Piedmontese breed 766, 769  
 pigs (as source of infection) 284, 285, 287, 466, 741–2  
 pig's ear (*Cotyledon orbiculata*) 831  
 pigweed (*Portulaca* spp.) 804  
*Pilobolus kleinii* 191  
*Pimelea* spp. 831–2  
 pine (*Pinus* spp.) 462, 477  
 pinkeye 48, 205, 616–19  
 pirlimycin 380, 400  
*Pithomyces chartarum* 267, 267, 588  
 pituitary abscess syndrome 324  
 placenta 467–79 *passim*  
   aborted 463–4, 466–8, 473–6, 749–50  
   ingestion 122  
   premature detachment 125, 821  
   release after calving 449–50  
   retained 97, 317  
     removal 450  
   zoonosis dangers 71, 73, 288  
 placentitis 206, 285, 441, 466–7, 473–4, 749  
 plant poisoning 803–13, 829–33  
   cardiovascular disorders 228, 237, 240, 830  
   gastrointestinal effects 96, 829–31  
   hepatic damage 264–6, 832  
   neurological effects 332–9, 831  
   reproductive failures 477, 805, 831  
   respiratory disorders 209, 832–3  
   skin disorders 587, 831, 833  
   urinary tract disorders 240–1, 275, 297, 832, 832  
 plasma proteins 61–2, 64, 69  
 platelet dysfunction 767  
 pleural drainage and lavage 203  
 pleural effusion 123, 136, 183, 196, 203, 213  
 pleuritis/pleurisy 45, 92, 203–4  
   fibrinous 190, 196, 198, 206  
 pleurocentesis 185

- pleuropneumonia, contagious bovine 750–1
- pluronics 87
- poisoning 815
- pneumonia 182–3
- aspiration/inhalation 199–200
- caudal vena cava syndrome 201–2
- enzootic calf pneumonia 186–8
- fungal 206–7
- interstitial 183, 207–9
- atypical interstitial (AIP) 208
- lung abscesses 201–2
- lungworm infection 191–4
- metastatic/embolic 183, 201
- mycotic/fungal 206–7
- pleuropneumonia, contagious bovine 750–1
- pneumonic pasteurellosis, bovine 197–9
- see also* bronchopneumonia
- pododermatitis
- aseptic (laminitis) 686–9
- traumatic 681–2
- poison peach (*Trema tomentosa*) 266
- polioencephalomalacia (PEM) 84, 239, 241, 325–7
- poloxalene 87
- polydactyly 770
- polymerase chain reaction (PCR) 152, 740, 790
- in breeding 422, 454–5, 458, 761–3, 766–70 *passim*, 774, 776
- M. paratuberculosis* 139, 142
- milk testing 149–50, 352
- respiratory conditions 205, 210
- reverse-transcription (RT-PCR) 148–9
- Polypogon monspeliensis* 336
- porphyria 589, 767
- Porphyromonas levii* 675
- Portulaca* spp. 804
- possums (as source of infection) 209, 284
- posterior vena cava syndrome *see* caudal vena cava thrombosis
- postparturient haemoglobinuria (PPH) 289–90
- potash fertilisers 505, 522, 539–41
- potassium 534, 549, 649
- potassium iodate 569
- potassium iodide 569
- potato weed (*Heliotropium europaeum*) 264
- potatoes (*Solanum tuberosum*) 832–3
- potentiated sulphonamides *see under* sulphonamides
- poultry litter 266
- Poxviridae (poxviruses) 73, 403–4, 578, 584, 742
- praziquantel 174
- pregnancy
- losses 461–80, 732
- rates 9, 460–1
- pregnant cows
- abdominal distension 125
- displaced abomasum 97
- on kikuyu grass 96
- pregnancy toxemia 512–13
- surgical difficulties 83, 114
- prepuce 494–5
- preputial samples 455, 458
- Prevotella melaninogenica* 441, 444
- Prevotella* spp. 675
- procaine penicillin 84, 189, 280, 839
- production diseases 503
- progesterone 426–7, 430, 435, 452, 477, 478
- proliferative stomatitis *see* bovine papular stomatitis
- propionate 95, 339, 505, 507–8, 565
- Propionibacterium* infection 612
- propylene glycol 516–17, 520
- prostaglandin 428–9, 447, 449, 450–1
- protein
- dietary 6, 85–6, 88, 477, 510–12
- lameness 667
- in milk 3, 14, 163, 214
- protein-energy malnutrition 510–12
- proteinases 687–8, 774
- proteins (in metabolism) 30, 244, 573
- plasma proteins 61–2
- Proteus mirabilis* 224
- protoporphyrin 767
- Prototheca zopfii* 399
- protozoa (in rumen) 76–7, 80, 82, 87–8, 638
- protozoan infections
- babesiosis 721–3
- coccidiosis 175–8
- cryptosporidiosis 72, 643–4
- neosporosis 471–4
- sarcocystosis 833–4
- surra 755
- theileriosis 291, 753–4
- trichomonosis 457–8
- sulphonamide treatment 840
- pruritis-pyrexia-haemorrhagic syndrome 587–8
- prussic acid poisoning 807–8
- Pseudallescheria boydii* 474
- pseudo lumpy skin disease 585
- pseudocowpox 73, 403–4, 584
- pseudolipidosis *see* mannosidosis
- Pseudomonas* spp. 341, 373, 378, 384, 398
- pseudorabies 741–2
- Psoroptes ovis* 594
- ptaquiloside 240
- Pteridium aquilinum* (bracken fern) 122, 325
- var. *esculentum* 240, 282
- pulmonary adenomatosis 207–8
- pulmonary embolic aneurysm *see* caudal vena cava thrombosis
- pulmonary haemorrhage 200, 202
- pulmonary hypertension 213
- pulmonary mycosis/aspergillosis 206–7
- pulmonary oedema and emphysema, acute 207–8
- pulmonary thromboembolism *see* caudal vena cava thrombosis
- pulse rate 41, 44, 108, 145, 152
- pyelonephritis 274, 275, 278–80
- pyloric obstruction 93–4, 105, 109
- pyogenic infections 67, 221, 580
- pyometra 441, 448–9
- pyothorax 213
- pyrimidines 165
- pyrrolizidine 62, 264–7, 589
- Q fever 73–4, 607
- Quercus* 296
- rabbits (as source of infection) 256, 257, 261
- rabies 743–5
- radial paralysis 710
- radiography 91, 185, 709, 768
- ragwort (*Senecio jacobea*) 264, 332–3, 589
- Raillietia auris* 595, 625
- Ranunculus* spp.
- R. bulbosus* 589
- R. flammula* 832
- rape poisoning 289, 804

- Rapid Mastitis Test (RMT) 357–8  
*Rathayibacter toxicus* 335–6  
rats (as source of infection) 284, 285, 471  
rattle pods (*Crotalaria* spp.) 264  
recto-vaginal constriction 245  
recto-vestibular fistula 121  
rectum  
  examinations 50–1  
  inherited constriction 245  
  lesions and ulceration 646, 747  
  prolapse/eversion 120–1  
  tears 121  
recumbency 542–8, 710  
‘red gut’ 115  
red water disease 794–5  
redroot (*Amaranthus* spp.) 832  
redwater *see* babesiosis  
refugia parasite control concept 169, 170  
reproductive system 414–501  
  abnormalities in bulls 488–501  
  BVDV effects 144–5  
  congenital abnormalities in cows 480–4  
  reproductive performance 414–21, 423–4, 454, 570, 732–3  
  ultrasound examination 52  
residues 330, 603, 635, 806  
  in milk 373–4, 376, 381–2, 387, 400, 599, 842  
respiratory tract 182–4  
  acute respiratory distress syndrome 207–8  
  anaphylaxis 214  
  bovine pneumonic pasteurellosis 197–9  
  examination 41–2, 44–5, 53, 184–5  
  feedlot cattle 823  
  interstitial pneumonias 207–9  
  pleurisy 202–4  
  upper airway disorders 211–12  
  young cattle 186–94  
  *see also* bovine respiratory disease; caudal vena cava syndrome; tuberculosis  
restraint of animals 39, 78, 184–5, 486, 669–72  
  lame cattle 669–71  
  sedation and anaesthesia 672–4, 843–5  
retained fetal membranes (RFM) 449–51, 561  
reticulocytosis 236  
reticulum 52, 86, 88, 90–5, 122  
  traumatic reticuloperitonitis 52, 78, 90–2  
rhinitis 182, 204, 211  
rhinotracheitis *see* infectious bovine rhinotracheitis  
*Rhizomucor pusillus* 474  
*Rhizopus* spp. 638  
  *R. arrhizus* 474  
rhubarb 297  
rickets 540  
ricobendazole 174  
riding behaviour 819–20  
Rift Valley fever 745–6  
rinderpest 746–7  
ringworm 72, 408, 581–2  
rodents (as source of infection) 135, 284, 287, 404, 631  
rolling (as LDA treatment) 99–100, 115, 638  
*Romulea rosea* 114  
rotational grazing 20, 26, 194  
rotavirus 642, 645–6, 823  
‘rough dog’s tail’ 262  
roundworms *see* nematodes  
Ruakura system (grazing) 167  
rumen  
  calf disorders 638  
  chloride concentration 77  
  contents 76–7  
  examination 45–6  
  fermentation 20  
  fluid collection and analysis 76–7, 81–2  
  lavage 83  
  microflora 76–7, 80  
  pH levels 75–6, 80–3  
  stasis 82, 89  
  transfaunation 83, 84  
  ulceration 82, 84  
  *see also* vagus indigestion  
rumen acidosis 68–9, 76, 202  
  acute 80–4  
  diet and 11, 20, 201  
  subacute (SARA) 58, 76, 80–4, 665, 687–9, 716  
rumen fluke (paramphistomosis) 94–5  
rumen impaction 96  
  in calves 688  
rumen modifiers 716  
rumen overload *see* rumen acidosis  
rumen paracentesis *see* rumenocentesis  
rumen parakeratosis 95–6  
rumen tympany *see* bloat (rumen tympany)  
rumenitis 81, 255, 638  
  acute *see* rumen acidosis  
rumenocentesis 76, 82–3  
rumenotomy 83, 86–7, 92  
*Rumex acetosella* 297  
ruminal drinking (rumen putrefaction) 637  
ryegrass (*Lolium* spp.) 6, 267, 333, 335, 804  
  annual 335  
  perennial 333–4, 560  
ryegrass staggers 333–4  
S-methyl-L-cysteine sulphoxide (SMCO) 237, 289  
sacro-iliac luxation 702  
safety *see* restraint of animals  
Sahiwal breed 772  
salicylanilides 260  
saline, hypertonic 133, 246, 442, 650, 847  
saliva 48, 85, 302, 528, 539  
  buffering role 80, 534, 733  
  production 80, 97, 667–8  
salivary glands 300, 302, 614  
*Salmonella* spp. 74, 129–31, 641–4, 646  
  *S. Bovismorbificans* 129, 133  
  *S. Brandenburg* 129–30, 132, 133, 466, 641  
  *S. Dublin* 129–30, 132–3, 466, 581, 641  
  *S. Hindmarsh* 129, 133  
  *S. Montevideo* 129  
  *S. Newport* 129  
  *S. Typhimurium* 74, 129–33, 641  
  *S. Zanzibar* 129  
salmonellosis 74, 129–35, 466–7  
  calves 645  
salt (sodium chloride)  
  in diet 296, 505, 522, 529  
  intoxication/poisoning 331–2, 549  
*Salvia reflexa* 804  
sand crack (claw wall fissure) 690  
Santa Gertrudis breed 16  
sapogen poisoning 263  
SARA (subacute rumen acidosis) *see* rumen acidosis

- Sarcina ventriculi* 822  
*Sarcocystis* spp. 833–4  
sarcocystosis 833–4  
sarcophagia (carrion eating) 320  
*Sarcoptes scabiei* 577, 593, 594  
sarcoptic mange (scabies) 594  
scald (interdigital dermatitis) 677  
sciatic nerve paralysis 711  
screw-worm flies 604, 755–6  
seasonal calving 2–3, 7–11, 26, 414–19, 421, 423–4, 433  
sedatives 843–5  
selenium 290, 477, 559–64, 785–6  
    prills and pellets 563  
    sodium selenate 454, 563  
    toxicity 564, 587, 813–15  
selenium/vitamin E deficiency 228, 450, 559, 561–2, 785–6  
selenium weed (*Neptunia amplexicaulis*) 587  
semen  
    collection and assessment 487–8, 501  
    quality 420, 497–8  
    sexed 423  
seminal vesiculitis 496, 499–500  
*Senecio* spp. 266  
    *S. jacobea* 264, 332, 589  
*Senna/Cassia occidentalis* 228, 339  
septicaemia, haemorrhagic 751–2  
serological tests 149  
    BoHV-1 205, 468  
    BVDV 149, 469  
    cross-reactions 135, 287, 455  
    downer cows 545  
    limitations 139, 456, 462, 465, 468, 545  
    liver damage 252–3, 268  
    mineral deficiencies 534–5, 556–7, 562–3, 566–7, 569, 571  
    reproductive system 462–5, 468, 471, 473, 475  
    streptococci 388  
    tuberculosis 210  
    urinary system 277–8, 286–7  
    vitamin B<sub>12</sub> 566–7  
    see also ELISA  
SGOT see aspartate aminotransferase  
sheep (as source of infections) 135, 137, 151–3, 297, 467  
sheep's sorrel (*Rumex acetosella*) 297  
'shipping fever' see bovine pneumonic pasteurellosis  
Shorthorn breed 16, 228, 306, 481, 521, 762–7 *passim*, 773–4, 776  
signal grass (*Brachiaria* spp.) 263  
silage 3, 467  
    fermentation 313–4  
    maize 3, 11, 80, 195, 573  
'silage eye' 620  
silica 293  
*Silybum marianum* 804  
Simmental breed 24, 25, 764, 767, 771–2 *passim*, 823  
sinusitis 212  
skin 577–92  
    allergic conditions 591–2  
    dietary disorders 587  
    examination 42, 577–8  
    genetic disorders 767, 772–5  
    infections 578–85  
    lesions 577  
    necrosis 581  
    neoplasms 585–7  
    parasitic diseases 592  
    photosensitisation 588–90, 767  
    skin tuberculosis 581  
    slag poisoning 179  
    'slipper foot' 692  
    slurry heel 688  
    snails 257, 260–1  
    snakebite 588, 817–18  
    'snorter calves' 768  
    sodium 325, 331, 548  
        in diet 505, 522, 529  
    sodium bicarbonate (NaHCO<sub>3</sub>) 69, 83, 224, 531, 650, 716  
    sodium chloride 296, 358  
        see also salt  
    sodium ethylenediamine tetra-acetate (Na-EDTA) 330  
    sodium fluoroacetamide (1081 compound) 808  
    sodium iodide 842  
    sodium monensin 716  
    sodium monofluoroacetate (1080 compound) 808–9  
    sodium-potassium pump 325  
    sodium selenate 454, 563  
    sodium sulphate 322, 330  
Solanaceae 266  
*Solanum* spp.  
    *S. nigrum* 830–1  
    *S. tuberosum* 832–3  
sole conditions 681–6  
    ulcers 683–5  
*Solenopotes capillatus* 597  
somatic cell counts 56–7, 345–7, 350–2, 356, 361, 392, 731  
    bulk milk (BMSCC) 341  
    individual cow (ICSCC) 356–8, 382  
sorbitol dehydrogenase (SDH) 60, 252–3, 259  
sorghums 265, 568, 804, 807–8  
    ergot-infected feed 732  
sour sob (*Oxalis pes-caprae*) 297  
South Devon breed 25  
spasmolytic drugs 105, 110, 294  
spastic paresis 709  
spastic syndrome 824–5  
spasticity, periodic 824–5  
spearwort (*Ranunculus flammula*) 832  
*Spergular arvensis* 532  
spine 303–6, 496, 545, 709  
spirochaetes 72, 283–4, 675, 678–9  
spleen 53, 221  
split-calving systems 2, 8, 10, 11  
spondylosis 496, 709  
sporadic bovine encephalomyelitis (SBE) 833  
spore counts 269–70  
sporidesmin 253, 263–4, 267–71, 282, 289, 557, 588  
'spring eczema' 589  
spring parsley (*Cymopterus watsonii*) 588  
Spurrey (weed) 532  
squamous cell carcinoma 122, 213, 620–4  
    sale and slaughter rules 623–4  
St. John's Wort (*Hypericum perforatum*) 251, 263, 588  
staggers  
    flood plain 336  
    grass see hypomagnesaemia  
    paspalum 337–8  
    phalaris 336 7  
    ryegrass 333–4  
    see also annual ryegrass toxicity  
staphylococcal infections 384–8, 580–1

- Staphylococcus* spp. 340–408 *passim*  
*Staph. aureus* 224, 227, 279, 380–2, 384–7, 838–9  
 starch 116, 311, 325, 327, 507, 667  
 starvation ketosis 510–12  
*Stephanofilaria* spp. 602–3, 757  
 stephanofilarosis 757  
 Stewart's Range syndrome 336  
 stifle instability 704–5  
 stillbirth/perinatal weak calf syndrome 820–1  
 stinkwood (*Zieria arborescens*) 832  
 stocking rates (SR) 3, 9–11  
 stolon impaction *see* rumen impaction  
 stomach tubes 76, 82  
*Stomoxys calcitrans* 599  
 strabismus 302, 764  
 strawberry footrot 678–9  
*Streptococcus* spp. 224, 279, 340–401 *passim*, 468, 655  
   *Strep. agalactiae* 380, 388–90  
   *Strep. bovis* 80, 688  
   *Strep. dysgalactiae* 393–4  
   *Strep. faecalis* 399  
   *Strep. uberis* 390–3  
 streptomycin 287, 456, 841  
 stress 67, 137–8, 194–7  
   calving 130–1, 478  
   coccidiosis 175, 177, 178  
   cold 511  
   in feedlots 19, 194, 196, 198  
   heat 450, 479, 731–5  
   immune system 162, 195–6  
   respiratory diseases 186–8, 194–7, 199  
   salmonellosis 74, 130–1, 135  
   social 19, 195  
   transport 74, 130–1, 195–7, 199, 548  
     calves 634–5  
*Strongyloides papillosus* 155  
 subacute rumen acidosis (SARA) *see* rumen acidosis  
 sudden death syndrome (*Cl. sordellii* infection) 792  
 sulla 88, 170  
 sulphadiazine 840  
 sulphadimethoxine 196  
 sulphadoxine 840  
 sulphamezathine (sulphadimidine) 840  
 sulphonamides 260, 376, 840  
   potentiated 309–10, 378, 840  
 sulphur 239, 325–7  
 summer toxicosis 732  
 sunflower daisy (*Wedelia asperima*) 266  
 superphosphate 297, 539–41  
 supplementary feeding 11, 18–20  
   metabolic problems 505  
 surra 755  
 sustainability 30  
 Sustainable Grazing Systems Programme [South Australia] 20  
*Swainsonia* spp. 338–9  
 swedes 80, 237, 540, 615  
 Swedish Red-and-White breed 776  
 sweet clover (*Melilotus alba*) 247, 590  
 sweet grass (*Panicum* spp.) 263  
 sweet potatoes (*Ipomoea batatas*) 209, 833  
 sweet vernal grass (*Anthoxanthum odoratum*) 247  
 syndactyly 770  
 tachycardia 43  
*Taenia saginata* 174  
 tail mange 592, 593  
 tail necrosis 591  
 tallow 87  
 tannins  
   condensed 88, 170  
   toxic 296, 832  
 tapeworms (cestodes) 155, 166, 173–5  
*Taxus baccata* 812  
 teart 552, 553–4  
 teats 343–5, 347, 363, 369–70, 400–3  
   dermatitis 407–8, 580, 592  
   disinfection 363, 371–3, 393  
   milking injuries 369, 401–2, 591, 592  
   photosensitisation 406–7, 433, 588–90  
   sealants 383, 392, 400  
   sprays and dips 397, 401, 569  
   trauma and environmental injuries 407, 591  
   warts 406, 583  
 teeth 48, 539–40, 609–10, 612–13, 774  
 Telemark breed 767  
 temperature  
   body 40–2, 57, 636  
   climate and parasite infestation 156–9, 175, 192, 257–8,  
     260–1, 596–604  
   cold stress 186, 511, 633  
   heat stress and hyperthermia 479, 731–5, 816–17  
 'ten-to-four' syndrome 93  
 tenesmus 120  
 Teric 12A23B 87  
*Terminalia oblongata* 266, 832  
 testes 144, 484, 486, 489, 496–8  
 testicular feminisation 483  
 tetanus 316–20  
 tetracyclines 246, 322, 377, 447, 840–1  
   bacterial resistance 707, 840  
*Theileria* spp. 291, 753–5  
 theileriosis 291, 753–4  
 thiabendazole 84, 165, 272  
 thiaminases 239–41, 574  
 thiamine hydrochloride 84, 326, 330  
 thiamine (vitamin B<sub>1</sub>) 84, 325–7, 573–4  
 thimble (claw wall fissure) 690  
 thiophanate 165, 174  
 thistles 804  
 thorax  
   empyema (pyothorax) 213  
   examination 44–5, 47  
   pneumothorax 213  
   thoracocentesis 92, 185  
   ultrasonography 185  
 threadworms 155  
 'three-day sickness' 727–9  
 thrombocytopenia 41, 67, 146, 240  
 thromboembolic meningoencephalitis (TEME) 189, 190, 316  
 thrombophlebitis 246–7, 256  
 thrombotic thrombocytopenic purpura (TTP) 72  
 thyroid 477, 568–70  
   *see also* iodine deficiency  
 tibial nerve paralysis 713  
 tick fever *see* babesiosis  
 ticks 70, 291, 312, 592, 604–7, 721–5, 752–5  
   resistance to 16, 22, 606, 722–5  
 tilmicosin 187, 196, 199, 842  
 toe ulcers/abscesses 685  
 toggle pin technique (for LDA) 100–1  
 tolazoline HCl 844  
 tolfenamic acid 843

- toltrazuril 177, 178  
*Torulopsis* spp. 474  
toxaemia 67, 124–5  
toxic indigestion *see* rumen acidosis  
toxins 327–39, 826–33  
*see also* plant poisoning  
*Toxocara vitulorum* 155, 172–3  
toxocarosis 172–3  
trace elements/minerals 551–73, 716, 785–6  
trachea  
  examination 47–8  
  stenosis 823  
  tracheal collapse 212  
  tracheostomy 189  
  trans-tracheal aspiration 184–5  
tranquillisers 843–4  
‘transit fever’ *see* bovine pneumonic pasteurellosis  
transit tetany 548  
transition (peri-calving) period 503–6  
transport 195–6, 197, 199  
  calves 634–5  
  long-distance 19, 204  
  sick or injured animals 717  
  tetany 548  
traumatic reticuloperitonitis (TRP) 52, 78, 90–3  
  differential of seminal vesiculitis in bulls 500  
*Trema tomentosa* 266  
trematodes *see* flukes  
*Treponema* spp. 679  
*Tribulus terrestris* 263, 589  
*Trichomonas foetus* 449, 453, 457–8, 474  
trichomonosis 457–8  
*Trichophyton* spp.  
  *T. megninni* 72, 581  
  *T. mentagrophytes* 72, 581  
  *T. verrucosum* 72, 581–2  
*Trichosporon* spp. 399  
*Trichostrongylus* spp. 155–7, 159, 168  
  *T. axei* 30, 62, 155–6, 159  
  *see also* parasitic gastroenteritis  
triclabendazole 260  
trigeminal nerve 302  
triglyceride (TG) 272, 504, 507–8  
trimethoprim 376, 378, 840  
trimethylaminuria 776  
tropical breeds 16, 720, 723  
*Trypanosoma evansi* 755  
L-tryptophan 207–8  
tuberculosis 16, 28, 209–11  
  testing for 28  
  as zoonosis 71  
tumours  
  cardiovascular system 231, 245–6  
  cutaneous 585–6  
  eyes 621–4  
  gastrointestinal tract 122–3, 154  
  genital tract 483–4, 495–6, 499  
  liver 272  
  respiratory tract 213  
  urinary tract 240–1, 281  
turnips 804  
tutu (*Coriaria* spp.) 811  
tylosin 376–8, 716, 841  
tylosin phosphate 256  
udder 343, 347, 370–1, 375  
  dermatitis 407–8, 580  
  examination 48–9, 355  
  intertrigo 591  
  oedema 243–5, 401  
  seborrhoea 591  
  ‘udder acne’ 580  
  *see also* mastitis; teats  
ulcerative lymphangitis 581  
ulcers  
  abomasal 106–8  
  in claws 683–6  
  decubitus 590  
  intestinal 123, 135, 146, 233  
  oral cavity 151–4, 188, 405  
ultrasonography 51–3, 91, 185, 445  
  heart 218  
  liver 255  
  urinary tract 241, 278  
umbilicus 53, 636, 654–7  
  umbilical hernias 658  
undulant fever 71  
United States  
  Brahman cattle from 16  
  fawn calf syndrome 770  
  feedlots 196, 226, 823  
  Holstein cattle and genetics 8, 30, 684, 776  
urea  
  in feedstuffs 195  
  serum urea 277–80, 477  
  toxicity 332, 801–2  
  urea-molasses blocks 20, 170  
*Ureaplasma diversum* 453, 468  
urethra, rupture 126, 495  
uridine monophosphate synthetase, deficiency of (DUMP) 775  
urinary tract 273–97  
  examination 275–6, 279–80  
  therapy 275  
  urethrotomy 295–6  
  urine samples 40, 276–7, 531, 535  
  uroperitoneum 53  
  *see also* bladder  
urolithiasis 292–6  
urticaria 591  
uterine tubes 483  
uterus 125–6  
  congenital abnormalities 480–2  
  examination 49–50  
  infections 440–53  
vaccination  
  akabane virus 727  
  anaplasmosis 725  
  anthelmintic resistance 31  
  anthrax 800  
  babesiosis 722–3  
  bacillary haemoglobinuria 795  
  black disease (necrotic hepatitis) 793–4  
  blackleg 791  
  botulism 323  
  bovine ephemeral fever 728–9  
  bovine pneumonic pasteurellosis 199  
  bovine respiratory disease 196  
  *Brucella abortus* 71  
  BVDV 150–1, 470, 473–4, 484

- vaccination (cont'd)
- campylobacteriosis 456–7
  - cancer eye 622
  - cattle tick 606
  - clostridial diseases 312, 319, 788, 791, 793–5, 797
  - coronavirus 653
  - digital dermatitis 679
  - E. coli* 653
  - enterotoxaemia 797
  - enzootic calf pneumonia 187
  - foot-and-mouth disease 739–40
  - gastrointestinal parasites 170
  - infectious bovine rhinotracheitis (IBR) 204–6, 469, 616
  - interdigital necrobacillosis (footrot) 677
  - intranasal vaccines 469
  - IPV and IPB 469
  - Johne's disease 141
  - leptospirosis 284–9, 465–6
  - live, attenuated, inactivated, subunit 206, 469
  - lungworm disease 193
  - malignant oedema 792
  - mastitis 346, 397, 401
  - Neospora caninum* 474
  - papillomatosis 583–4
  - pinkeye (IBK) 619
  - Q fever 74
  - reactions and side-effects 214, 233, 580, 653, 723, 725
  - ringworm 582
  - rotavirus 631, 635, 642, 653
  - Salmonella* 133–4, 466–7, 653
  - tetanus 319
  - tick-transmitted diseases 723, 725
  - trichomonosis 458
  - venereal diseases 466–7
- vaccinia 403–4
- vagina 49–50, 245, 276, 443–7, 459–60
- anomalies 480–2
- vaginoscopy 445
- vagus indigestion 92–4, 105
- 'papple' syndrome 93
  - 'ten-to-four' syndrome 93
- vagus nerve 92–4, 105, 300, 302
- Varicellavirus* 204
- varicocele 498
- vascular system 218, 241–7
- vegetable waste 11, 80, 208–9, 588
- venae cavae
- caudal/posterior *see* caudal vena cava thrombosis
  - cranial 202
- venereal diseases 453–60
- venous thrombosis 246
- ventral retroflexion 116
- verminous pneumonia 191–4
- vertebral abscess (vertebral osteomyelitis) 312–13
- vertebral malformation, complex (CVM) 769
- vesicular glands 499–500
- vesicular stomatitis 747–9
- vestibular dysfunction 302, 310, 626
- vestibulocochlear nerve 300, 302
- veterinarians 16, 18, 21, 762
- vibriosis 453–7
- Vicia villosa* Roth 275
- vinegar 90, 122
- virginiamycin 84, 716
- virus neutralisation test (VNT) 149, 205
- viruses
- abortion 468–71
  - diarrhoea 143–54
  - exotic diseases 736–49
  - neurological diseases 299, 307–8, 323
  - reproductive system 453, 458–60, 463, 468–71, 484, 494–6
  - skin diseases 582–5
  - udder disorders 403–6
  - zoonoses 73
- vitamins 187, 573–4
- A 299, 328, 477, 573, 587
  - B group 573–4
    - B<sub>1</sub> 84
    - B<sub>12</sub> 564–8
  - C 587
  - D 529, 540, 573
  - E 559, 561–2, 573, 587, 786
  - H 574, 716
  - K 247
- volatile fatty acids (VFA) 80, 95–7, 505–7
- volvulus *see* abomasum; caecal dilatation, volvulus and torsion; intestines
- vulva 450–1, 459–60, 591–2
- examination 41
- vulvovaginitis, infectious pustular (IPV) 204–6
- Wangiella dermatitidis* 474
- warble flies 601–2, 736–7
- water 11, 12
- intake in heat 734
  - intoxication 289, 331 2
  - troughs 94–5
  - see also* irrigation
- water bush (*Myoporum acuminatum*) 266
- water couch (*Paspalum distichium*) 337
- 'weak calf syndrome' 820–1
- weaning 26–7, 31, 196, 199, 632
- ill-thrift in weaners 782–6
  - parasitic infection susceptibility 159–63, 167, 177–8, 785
- 'weaver syndrome' 765
- Wedelia* spp. 266
- weeds 264, 266–7, 332, 804, 832
- see also individual plants – page references listed* 826–9
- Weil's disease 73
- weir vine (*Ipomoea* spp. aff. *calobra*) 339
- welfare of animals 21, 42, 511, 558, 663, 762
- codes and laws 548, 623, 635, 717
  - White-blue Belgian breed 774
- 'white heifer' syndrome 481–2
- white line disease/injury 682–4, 685
- white muscle disease (nutritional muscular dystrophy) 559–63
- Why Wait? programme 429
- wildlife (as source of infection) 28, 137, 209, 256, 261, 642, 744
- Williams test 91
- winter dysentery 154
- wire 90–2, 221
- wombats (as source of infection) 256
- 'woody tongue' *see* actinobacillosis
- 'wool sorter's disease' 71, 798
- worms 155–75
- control 169–71
  - worm burdens 159–63
  - worm counts 167–8
  - see also* flukes; nematodes; parasitic gastroenteritis; tapeworms
- wounds 708

*Xanthium* spp. 266, 811  
*Xanthorrhoea* spp. 339  
xylazine 120, 479, 844–5

Yarr (*Spergular arvensis*) 532  
year-round calving 2, 8–9, 414, 416–18, 424, 433  
yeasts 399, 474, 564  
yellow-wood (*Terminalia oblongata*) 266, 832  
*Yersinia* spp. 74, 135–6  
    *Y. enterocolitica* 135–6  
    *Y. pseudotuberculosis* 135–6  
yersiniosis 74, 135–6  
yew (*Taxus baccata*) 812  
yohimbine HCl 844

zamia staggers 338  
zearalenone 244, 478, 591–2  
Zebu cattle 625  
*Zieria arborescens* 832  
zinc 347, 553, 570–2, 587  
    inherited deficiency 773  
zinc methionine 571  
zinc oxide 270, 571  
zinc sulphate 270–1, 571  
zoonoses 70–4, 142, 174, 286, 288–9, 315, 464, 470, 798–9  
    exotic 744, 747–50, 752–3  
    *Salmonella* spp. 642  
    skin diseases 582, 584