

## Subject Index of Papers Published in Volume 86 of the *Journal of Dairy Science*

### A

- abnormal yield, outlier detection, yield adjustment, test day, 2721
- abomasal infusion, conjugated linoleic acid, dairy cow, milk, 1321
- accuracy, prediction bias, model evaluation, National Research Council, 344
- acid milk gel, rheological property, serum-holding capacity,  $\kappa$ -casein hydrolysis, 704
- acid-base status, exercise, training, physical fitness, 2839
- acidification, pizza cheese, milk protein concentrate, 3841
- acidifying activity, *Lactobacillus* spp., lactic acid bacteria, freezing, 3048
- Activator Protein-2,  $\beta$ -lactoglobulin, polymorphism, milk protein, milk yield, 2213
- adhesion molecule, polymorphonuclear leukocyte, bovine, endotoxin mastitis, 2334
- adjunct culture, exopolysaccharide, *Streptococcus thermophilus* 1275, whey protein concentrate, 3405
- aerobic stability, *Lactobacillus buchneri*, *Lactobacillus plantarum*, silage, 3575  
silage, 336
- aflatoxin, dairy sheep, carryover, milk, 2667
- aggregation, casein, fractal, rennet, 2504
- aging temperature, calcium lactate crystallization, Cheddar cheese, nonstarter lactic acid bacteria, 2516
- air quality, animal science curricula, environment, regulation, 1045  
milk renneting parameters, milk renneting parameters, dairy ewe, 3881
- alfalfa, milk production, silage, clover, 2598
- alfalfa hay, sorting, selection, 557
- alfalfa silage, tallow, digestibility, corn silage, 593
- allantoin, microbial protein, milk, 1716
- allelic variation, milk production, immune response, leptin gene, 3164
- allergen absorption,  $\beta$ -lactoglobulin, Edam cheese, cow's milk allergy, 464
- alternative protein, liquid egg, calf, 2622
- amino acid, grass silage, dairy cow, glucose, 3260  
glucogenic source, dairy cow, 3249  
corn silage, kernal processor, 3675  
milk yield, mammary function, dairy cow, 1436  
three times-daily milking, milk yield, dairy cow, 3309
- amino acid partition, three-times daily milking, growth hormone, dairy cow, 2409
- ammonium, urea synthesis, feeding behavior, propionate infusion, 1398
- analysis, paracasein, milk, cheese, 469
- anestrus, treatment, cattle, postpartum, 1876
- angiotensin-converting enzyme, antihypertensive peptide, SDS-PAGE analysis, Western-blotting detection, 1927
- angiotensin-I-converting enzyme inhibitory peptide, fermentation, gastrointestinal digestion, 429
- animal science curricula, environment, regulation, air quality, 1045
- anovulation, conception rate, Ovsynch, estrus, 3184
- antibiotic, calf, mavan oligosaccharide, milk replacer, 4064  
internal teat sealant, intramammary infection, Orbeal seal, 3912
- antibody, milk production, peripartum, selection, 169
- antihypertensive peptide, SDS-PAGE analysis, Western-blotting detection, angiotensin-converting enzyme, 1927
- antimicrobial, ewe milk, microbial inhibitor test, detection limit, 457  
*Escherichia coli*, mastitis, susceptibility, 3927
- antimicrobial drug susceptibility, *Staphylococcus aureus*, mastitis, 3157
- antioxidant activity, reducing activity, sulfhydryl group, hydroxyl radical scavenging, 1541
- apoptosis, multiphasic lactation curve model, extended lactation, pregnancy, 988  
neonatal calf, lymphoid tissue, cell proliferation, 3321
- aroma, odor activity, purge-trap, Parmigiano Reggiano cheese, 770
- artificial insemination, progeny test, selection intensity, sire sampling, 1513
- arylesterase, nucleotide sequencing, purification, *Lactobacillus casei*, 2547
- ascorbic acid, cattle, immune function, 622
- asymmetry, handedness, management, laterality, 3167
- automated milking, teat end condition, teat skin condition, 1646
- automatic milking system, cow traffic, behavior, milking frequency, 1997  
dairy cow, milk leakage, udder health, 3488  
feeding behavior, milk yield, cow behavior, 1494

**B**

- B vitamins, dairy cow, milk production, biotin, 2106  
*Bacillus cereus*, high pressure, lysozyme, nisin, 3075  
background linkage disequilibrium, genetic diversity, Holstein, linkage disequilibrium, 4137  
bacterial community analysis, continuous culture fermenter, 2-hydroxy-4-(methylthio) butanoic acid, methionine, 2629  
bacterial iron uptake, FecA, immunoglobulin, *Escherichia coli*, 133  
bacterial lectin, milk analysis, human milk, bovine milk, 2276  
bacterial protein synthesis, cottonseed, starch, ruminal fermentation, 3661  
bactericidal activity, colostrum, lactulose, C-reactive protein, 3313  
bacteriocin, coculture, *Streptococcus thermophilus*, *Clostridium trybutyricum* inhibition, 3068  
Bayesian analysis, bivariate longitudinal response, test-day yield, threshold model, 3000  
    random regression test-day model, heterogeneity of residual variance, 3374  
Bayesian methods, clinical mastitis, (co)variance component, threshold model, 653  
    genetic change, threshold model, 369  
    genetic evaluation, longitudinal threshold model, 2676  
    mixture model, somatic cell score, udder health, 3694  
    structural model, covariance component, genotype  $\times$  environment interaction, 1837  
beet pulp, high-moisture corn, fermentation, microbial efficiency, 3562  
    milk yield, ruminal fill, 3542  
    site of digestion, starch digestion, 3553  
behavior, cubicle, comfort, well-being, 521  
    milking frequency, automatic milking system, cow traffic, 1997  
bermudagrass, grazing, pasture, 1268  
*Bifidobacterium* spp., blood lipid, fermented milk, 2452  
biocapsule, encapsulation, lactic acid bacteria, sesame oil emulsion, 424  
biohydrogenation, canola, in situ, in vitro, 351  
    conjugated linoleic acid, in vitro, polyunsaturated fatty acids, 4054  
    milk fat, unsaturated oil, rumenic acid, 1354  
biomechanics, dairy cattle, lameness, horn, 2875  
bioreactor design, milk hydrolysis,  $\beta$ -galactosidase, *Kluyveromyces lactis*, 2783  
biotin, B vitamins, dairy cow, milk production, 2106  
    claw lesion, milk production, fertility, 3953  
biotin supplementation, survival analysis, white line disease, lameness, 2577  
birth weight, dystocia, Holstein, perinatal mortality, 3745  
bivariate longitudinal response, test-day yield, threshold model, Bayesian analysis, 3000  
 $\beta$ -LG denaturation, milk, plasmin system, micelle microstructure, 728  
blood lipid, fermented milk, *Bifidobacterium* spp., 2452  
body condition score, dairy character, disease, mastitis, 3730  
    body type, genetic analysis, milk production, 3685  
    fertility, random regression, body weight, 3704  
    selection index, body weight, 2193  
    heritability, genetic correlation, 2236  
    genetic correlation 2236  
    logistic regression, negative energy balance, reproduction, 2308  
    multivariate model, random regression model, genetic component, 4123  
body fat, body protein, transition, methionine analog, 3634  
body protein, transition, methionine analog, body fat, 3634  
body surface, energy requirement, heat stress, thermal comfort, 3605  
body type, genetic analysis, milk production, body condition score, 3685  
body weight, body condition score, fertility, random regression, 3704  
    selection index, 2193  
bovine chromosome 14, marker-assisted selection, cattle microsatellite, quantitative trait loci, 2219  
bovine leukemia virus, casein, mammary epithelial cell, 2826  
bovine milk, bacterial lectin, milk analysis, human milk, 2276  
bovine milk fatty acid profile, nitrogen supplementation, rumen function, 4020  
bovine somatotropin, insulin, protein utilization, insulin-like growth factor-I, 275  
    milk yield, transition period, dairy cow, 3195  
bovine colostrum, sialyloligosaccharide, pyridylamination, 1315  
    dry period, milk production, lactation, 3027  
    endotoxin mastitis, adhesion molecule, polymorphonuclear leukocyte, 2334  
    urea, pH, preimplantation embryo, 1194  
bovine udder health, milk parameter, multivariate analysis, 1221  
bovine  $\kappa$ -casein, human  $\beta$ -casein, reconstituted milk micelle, protein-ion interactions, 2269  
breed, conjugated linoleic acid, desaturase index, milk fat, 2588  
breed difference, crossbreeding, heterosis, 1036  
brewer's grain, milk, dairy, cow, 2914

- brine temperature, salt uptake, Ragusano cheese, 2799  
 brine, presalting, Ragusano cheese, 1083  
 brown midrib, corn silage, forage neutral detergent fiber, 3667  
 BRT AiM, Delvotest, ewe milk, microbiological screening test, 1947  
 butter, Cheddar cheese, fish meal, milk, 2568  
 butter texture, dairy cow, fatty acid composition, 3122  
 buttermilk, dairy ingredient, milk fat globule membrane, 2744  
   milk fat globule membrane, microfiltration, supercritical fluid extraction, 2297  
 buttermilk solids, nonfat dried milk, soy protein isolate, egg powder, 746
- C**
- Ca<sup>2+</sup>, glucose, sheep, ketosis, 1953  
 calcium, functionality, direct acidification, Mozzarella cheese, 1918  
   high-pressure injection, ionic strength, syneresis, 60 phosphate, protein matrix, 3113  
   syneresis, 2751  
 calcium lactate crystallization, Cheddar cheese, non-starter lactic acid bacteria, aging temperature, 2516  
 calcium retention, lactose reduction, pilot-scale process, ultrafiltration, 2761  
 calf, alternative protein, liquid egg, 2622  
   health, lactoferrin, weaning, 1458  
   maman oligosachharide, milk replacer, antibiotic, 4064  
   milk replacer, plasma, 586  
   mortality, heritability, genetic parameter, 1807  
   pasteurization, immunoglobulin, colostrum, 1503  
   starter colostrum, 2145  
   vitamin B12, cobalt, cow, 1405  
 calf management, feeding, waste milk, health, 3963  
 calf nutrition, protein digestion, protein and peptide fractions, 934  
 calving ease, dystocia, threshold model, 1845  
   genetic evaluation, 3366  
 calving interval, fertility, insemination information, 4093  
 camel, gene expression, milk protein, transcription factor binding site, 498  
 candidate gene, variance analysis, casein promoter, linkage mapping, 2696  
 canola, in situ, in vitro, biohydrogenation, 351  
 capillary electrophoresis, chymosin,  $\alpha_{s1}$ -casein,  $\beta$ -casein, 114  
   citric acid, phosphate, milk, 86  
 capillary electrophoresis, whey protein-to-total protein ratio, proteolysis, processed milk, 2813  
 carbohydrate, rumen ammonia, milk protein, dairy cow, 2416  
 carbon dioxide, casein, freezing point, serum protein, 1590  
   conductance, Gompertz model, milk bacteria, 1932  
   pH, freezing point, milk and cream, 1578  
   raw mik storage, proteolysis, lipolysis, 1616  
 carbon dioxide concentration, pH in heat exchanger, temperature, pressure, 3822  
 carryover, milk, aflatoxin, dairy sheep, 2667  
 $\alpha_{s1}$ -casein,  $\beta$ -casein, capillary electrophoresis, chymosin, 114  
 $\beta$ -casein, capillary electrophoresis, chymosin,  $\alpha_{s1}$ -casein, 114  
 $\kappa$ -casein hydrolysis, acid milk gel, rheological property, serum-holding capacity, 704  
   genetic polymorphism, genotyping, goat, 2715  
   single-strand conformation polymorphism, goat, 3726  
 casein, endogenous proteolysis, lipopolysaccharide, mastitis, 1163  
   ractal, rennet, aggregation, 2504  
   freezing point, serum protein, carbon dioxide, 1590  
   mammary epithelial cell, bovine leukemia virus, 2826  
   milk salts, cheese structure and texture, functional property, 2725  
   protein kinase, phosphorylation, milk, 1147  
 casein micelle, emulsion, phase behavior, 764  
   gelation kinetics, serum casein, transglutaminase, 1556  
 casein micelle aggregation, mineral environment, concentrated milk, yield stress, 3813  
 casein promoter, linkage mapping, candidate gene, variance analysis, 2696  
 cattle, forage, feeding, *Escherichia coli*, 852  
   immune function, ascorbic acid, 622  
   leptin, leptin receptor, 2369  
   postpartum, anestrus, treatment, 1876  
 cattle feeding, dairy product, ensiling, 1325  
 cattle microsatellite, quantitative trait loci, bovine chromosome 14, marker-assisted selection, 2219  
 CD14, lipopolysaccharide, *Escherichia coli*, mastitis, 2382  
 cell proliferation, apoptosis, neonatal calf, lymphoid tissue, 3321  
 chaotrophic agent, lithium chloride, human  $\beta$ -casein, milk micelles, 78  
 Cheddar cheese, fish meal, milk, butter, 2568  
   nonstarter lactic acid bacteria, aging temperature, calcium lactate crystallization, 2516  
   proteolysis, smoking, 1910  
 cheese, analysis, paracasein, milk, 469

- chemometrics, fluorescence spectroscopy, parallel factor analysis, 1101
- fat globule, rheology, free oil, 755
- optimization, microfiltration, 1564
- texture, rheology, sensory, 3054
- cheese curd, cooking, stretching, free oil, 449
- cheese flavor, *Lactobacillus*, nonstarter lactic acid bacteria, 2773
- cheese ripening, *Lactococcus* spp., peptidase, protease, 1139
- proteolysis, peptide profiling, Reggiano Argentino cheese, 3831
- cheese structure and texture, functional property, casein, milk salts, 2725
- chemometrics, fluorescence spectroscopy, parallel factor analysis, cheese, 1101
- chemometrics, riboflavin, yogurt, fluorescence spectroscopy, 2508
- chewing behavior, feeding behavior, ruminal pH, enzyme, 565
- rumen pH, dairy cow, physically effective neutral detergent fiber, 630
- cholesterol, Feta cheese, yeast, probiotic, 3416
- cholesterol removal,  $\beta$ -cyclodextrin, functional property, whipping cream, 2767
- choline, gluconeogenesis, hepatic lipidosis, dairy cow, 1722
- chop length, corn silage hybrid, mechanical processing, macro in situ, 3271
- corn silage, mechanical processing, 208
- chronic mastitis, imbalance, leukotriene B<sub>4</sub>, lipoxin A<sub>4</sub>, 3430
- chymosin,  $\alpha_{s1}$ -casein,  $\beta$ -casein, capillary electrophoresis, 114
- cisternal size, udder health, ultrasonography, milking frequency, 2352
- citric acid, phosphate, milk, capillary electrophoresis, 86
- claw disorder, epidemiology, floor system, lameness, 2082
- claw lesion, milk production, fertility, biotin, 3953
- clinical mastitis, (co)variance component, threshold model, Bayesian methods, 653
- dairy cattle, selection, somatic cell score, 4129
- genetic change, threshold model, Bayesian methods, 369
- genetic evaluation, longitudinal threshold model, Bayesian methods, 2676
- protein yield, selection experiment, selection response, 2990
- Clostridium trybutyricum* inhibition, bacteriocin, coculture, *Streptococcus thermophilus*, 3068
- clover, alfalfa, milk production, silage, 2598
- coated urea, nitrogen metabolism, nitrogen balance, nitrogen excretion, 2154
- cobalt, cow, calf, vitamin B12, 1405
- coculture, *Streptococcus thermophilus*, *Clostridium trybutyricum* inhibition, bacteriocin, 3068
- cofactor, dairy cattle, interval mapping, quantitative trait, 1828
- colostrum, calf, pasteurization, immunoglobulin, 1503
- starter, 2145
- IGF-1, IGF binding protein, neonatal calf, 2022
- lactulose, C-reactive protein, bactericidal activity, 3313
- mature milk, dairy cow, milk composition, 2005
- reverse micelleimmunoglobulin G, 1639
- sialyloligosaccharide, pyridylation, bovine, 1315
- comfort, well-being, behavior, cubicle, 521
- commercial dairy, western United States, nitrogen balance, 4178
- western United States, phosphorus balance, 688
- competitive PCR, fiber attachment, ruminal cellulolytic bacteria, 1429
- concentrate, dairy cow, leptin, metabolic and endocrine status, 1690
- concentrate supplementation, grass dry matter intake, genetic merit, 610
- concentrated milk, yield stress, casein micelle aggregation, mineral environment, 3813
- concentration of progesterone in milk, dairy cow, intravaginal progesterone insert, 2050
- conception, cow, GnRH, ovulation, 2012
- conception rate, Ovsynch, estrus, anovulation, 3184
- conductance, Gompertz model, milk bacteria, carbon dioxide, 1932
- confocal laser scanning microscopy, yogurt, exopolysaccharide, rheology, 1632
- conformation, housing, management, genotype  $\times$  environment interaction, 661
- conjugated linoleic acid, dairy cow, milk, abomasal infusion, 1321
- desaturase index, milk fat, breed, 2588
- fat, milk, pasture, 644
- firmness, oleic acid, linoleic acid, 70
- gas liquid chromatography, *Lactobacillus* spp., probiotics, 1941
- in vitro, polyunsaturated fatty acids, biohydrogenation, 4054
- milk, lipid oxidation, sensory, 43
- milk fat, dairy cattle, 3229
- lactation, transition cow, 3218
- transvaccenic acid, milk fatty acids, 944
- vaccenic acid, rumen digesta, plasma triglyceride, 3648

- $\Delta 9$ -desaturase, principal component analysis, odd-chain fatty acid, 4047  
 grazing dairy cow, fat supplementation, 3237  
 conservation method of corn, energy spilling, microbial N, microbial efficiency, 195  
   feeding behavior, intake, nutrient utilization, 174  
   starch digestibility, digestion kinetics, 184  
 consistency coefficient, flow behavior index, glycomacropeptide, high pressure and temperature, 1535  
 continuous culture fermenter, 2-hydroxy-4-(methylthio) butanoic acid, methionine, bacterial community analysis, 2629  
 controlled-release capsule, metabolic parameter, monensin, transition dairy cow, 1171  
 cooking, stretching, free oil, cheese curd, 449  
 copper, *Escherichia coli*, mastitis, 1240  
 corn hybrid, dairy cow, glyphosate tolerant, corn rootworm protection, 1707  
 corn rootworm protection, corn hybrid, dairy cow, glyphosate tolerant, 1707  
 corn silage, alfalfa silage, tallow, digestibility, 593  
   dairy cow, nitrogen supplementation, rumen synchrony, 4008  
   forage neutral detergent fiberbrown midrib, 3667  
   height of cutting, silage maturity, 2163  
   inoculation, mechanical processing, maturity, 287  
   kernal processor, amino acids, 3675  
   mechanical processing, chop length, 208  
   milk fat, particle size, tallow, 2949  
 corn silage hybrid, dairy cow, nutrient digestibility, 2932  
   mechanical processing, macro in situ, chop length, 3271  
 cost, design, dairy farm, investment, 3536  
 cottonseed, gossypol, reproduction, dairy cow, 892  
   starch, ruminal fermentation, bacterial protein synthesis, 3661  
 cottonseed hull, forage particle length, rumination, 2438  
 covariance component, genotype  $\times$  environment interaction, Bayesian methods, structural model, 1837  
 covariance matrix, weighted bending, genetic correlation matrix, 677  
 cow, brewer's grain, milk, dairy, 2914  
   calf, vitamin B12, cobalt, 1405  
   GnRH, ovulation, conception, 2012  
 cow behavior, automatic milking system, feeding behavior, milk yield, 1494  
 cow preference, stocking density, free-stall base, staff use, 2253  
 cow traffic, behavior, milking frequency, automatic milking system, 1997  
 cow's milk allergy, allergen absorption,  $\beta$ -lactoglobulin, Edam cheese, 464  
 crack, nonstarter, lactic acid bacteria, moisture, 719  
 C-reactive protein, bactericidal activity, colostrum, lactulose, 3313  
 crimped grain preservation, *Lactobacillus buchneri*, *Lactobacillus fermentum*, *Leuconostoc mesenteroides*, 1789  
 crossbreeding, dairy cattle, survey, 4148  
   heterosis, breed difference, 1036  
 cross-linked amino acids, enteral nutrition, lysinoalanine, thermal damage, 2283  
 crude protein, methionine, nitrogen, urine, 4033  
*Cryptosporidium* spp., *Giardia* spp., soil, risk, 784  
 crystallization, fractionation, milk fat, short-path distillation, 735  
 cubicle, comfort, well-being, behavior, 521  
 culling, survival analysis, Holstein, herd expansion, 1482  
 cumulative sum, estrous detection, statistical process control, Shewhart, 1970  
 custom heifer growing, national survey, heifer management, 3016  
 $\beta$ -cyclodextrin, functional property, whipping cream, cholesterol removal, 2767
- D**
- DAFOSYM, robotic milking, farm simulation, economics, 4167  
 dairy, cow, brewer's grain, milk, 2914  
   detection of estrus, statistical process control, economics, 3516  
   heat stress, environment, lactation, 2131  
 dairy bull, energy balance, genetics, selection, 2205  
 dairy cattle, conjugated linoleic acid, milk fat, 3229  
   dairy efficiency, 3796  
   growth hormone receptor, liver, 3920  
   interval mapping, quantitative trait, cofactor, 1828  
   lameness, horn, biomechanics, 2875  
   model comparison, random regression model, somatic cell score, 4103  
   selection, somatic cell score, clinical mastitis, 4129  
   survey, crossbreeding, 4148  
   transition, energy density, lactation performance, 916  
 dairy cattle breeding, marker-assisted selection, quantitative trait loci, 667  
 dairy character, disease, mastitis, body condition score, 3730  
 dairy cow, amino acid partition, three-times daily milking, growth hormone, 2409  
   grass silage, glucogenic source, 3249  
   milk yield, mammary function, 1436  
   three times-daily milking, milk yield, 3309

- bovine somatotropin, milk yield, transition period, 3195
- carbohydrate, rumen ammonia, milk protein, 2416
- choline, gluconeogenesis, hepatic lipidosis, 1722
- cottonseed, gossypol, reproduction, 892
- degradation, protein, purine, 1292
- early lactation, fatty liver, glucagon, 3138
- energy, Johne's disease, parturition, 3527
- energy feeding system, energy requirement, prediction, 1415
- fatty acid composition, butter texture, 3122
- fatty liver, glucagon, lipoprotein, 2895
- left-displaced abomasum, 1465
- feeding pattern, push-up, feeding behavior, 4079
- fibrolytic enzyme, digestion process, milk production, 546
- flaxseed, omega-3 fatty acids, immune response, 2647
- forage, NRC-2001 model, DVE-OEB system, 2178
- forage-to-concentrate ratio, linseed oil, ruminal digestion, 3999
- glucose, amino acid, grass silage, 3260
- glyphosate tolerant, corn rootworm protection, corn hybrid, 1707
- housekeeping gene, liver, 3423
- intravaginal progesterone insert, concentration of progesterone in milk, 2050
- intravaginal progesterone, intravaginal insert, re-synchronization of estrus, 2039
- lactation, energy metabolism, 2904
- lactation stage, endotoxin, mastitis, 2327
- leptin, metabolic and endocrine status, concentrate, 1690
- mammary gland, liver, thyroid hormone, 152
- mastitis, milk quality, milk sample, 3466
- nuclear factor  $\kappa$ B, 1259
- milk, abomasal infusion, conjugated linoleic acid, 1321
- milk composition, colostrum, mature milk, 2005
- propionic acid, glucose, 243
- milk leakage, udder health, automatic milking system, 3488
- milk production, biotin, B vitamins, 2106
- monensin, ovarian activity, ovulation, 3498
- ruminal acidosis, milk fatty acids, 4043
- nitrogen supplementation, rumen synchrony, corn silage, 4008
- nutrient digestibility, corn silage hybrid, 2932
- phosphorus requirement, phosphorus excretion, forage, 3300
- physically effective neutral detergent fiber, chewing behavior, rumen pH, 630
- protein supplementation, in vivo degradation rate, 835
- purine derivation, microbial synthesis, urinary and milk excretion, 1282
- rumen pH, neutral detergent fiber, particle size, 3611
- stage of lactation, feeding behavior, 3354
- subacute ruminal acidosis, sodium bicarbonate, feed intake, 954
- timed artificial insemination, synchronization, resynchronization, 3941
- validation, feeding behavior, 3571
- volatile fatty acid, rumen fermentation, milk fat depression, 3620
- wet corn gluten feed, ruminant, milk yield and composition, 844
- dairy efficiency, dairy cattle, 3796
- dairy ewe, air quality, milk renneting parameters, milk renneting parameter, 3881
- East Friesian, machine stripping, parlor throughput, 680
- dairy farm, investment, cost, design, 3536
- phosphorus, diet modification, 3787
- dairy food safety, *Listeria monocytogenes*, ecology, population genetics, 1865
- dairy goat, growth, lasalocid, nitrogen utilization, 3967
- mammary blood flow, nitric oxide, 2094
- once daily milking, milk production, somatic cell count, 1673
- Dairy Herd Improvement, milk urea nitrogen, milk protein, milk fat, 3008
- dairy herd management, industry, university, undergraduate, 1029
- dairy ingredient, milk fat globule membrane, butter-milk, 2744
- dairy product, ensiling, cattle feeding, 1325
- dairy sheep, carryover, milk, aflatoxin, 2667
- somatic cell count, production trait, genetic parameter, 1476
- days open, heat stress, seasonality, month of calving, 3718
- days to first service, incomplete pedigree, inbreeding depression, milk yield, 2967
- degradation, protein, purine, dairy cow, 1292
- Delvotest, ewe milk, microbiological screening test, BRT AiM, 1947
- dephosphylated  $\beta$ -casein, molecular dynamics, lipid-protein interaction, functional property, 3876
- $\Delta 9$ -desaturase, principal component analysis, odd-chain fatty acid, conjugated linoleic acid, 4047
- desaturase index, milk fat, breed, conjugated linoleic acid, 2588
- design, dairy farm, investment, cost, 3536
- detection limit, antimicrobial, ewe milk, microbial inhibitor test, 457
- detection of estrus, statistical process control, economics, dairy, 3516

- development, leptin, nutrition, puberty, 3206  
 developmental immunity, interferon, neonatal calf nutrition, nitric oxide, 3592  
 diet, lactating dairy cow, monensin, milk fat, 4161  
 diet modification, dairy farm, phosphorus, 3787  
 dietary cation-anion difference, hypocalcemia, pasture, 2658  
   pasture, potassium, hypocalcemia, 979  
     lactating cow, 970  
 dietary fat, heat stress, primiparous cow, 1306  
 differential leukocyte count, flow cytometry, low somatic cell count milk, 828  
 digesta, genetically modified feed, milk, DNA digestion, 4070  
 digesta kinetics, fatty acid, legume, rumen biohydrogenation, 2612  
 digestibility, corn silage, alfalfa silage, tallow, 593  
   nutrition level, net energy for lactation, 3992  
 digestion kinetics conservation method of corn, starch digestibility, 184  
 digestion process, milk production, dairy cow, fibrolytic enzyme, 546  
 direct acidification, Mozzarella cheese, calcium, functionality, 1918  
 direct and maternal genetic effects, threshold model stillbirth and calving difficulty, 2228  
 direct microscopic method, ewe milk, somatic cell count, Fossomatic method, 138  
 direct-fed microbial, production, 331  
 disease, mastitis, body condition score, dairy character, 3730  
 DNA digestion, digesta, genetically modified feed, milk, 4070  
 DNA microsatellite, percentage exclusion, marker-assisted selection, genetic marker, 1818  
 docosahexaenoic acid, fish meal, feather meal, milk composition, 861  
 dry cow, early lactation, intake, production, 2397  
 dry cow therapy, tilmicosin, *Staphylococcus aureus*, 159  
 dry matter intake, milk production, milk fatty acids, dry period, 870  
   model, prefresh transition period, 1771  
 dry period, dry matter intake, milk production, milk fatty acids, 870  
   feed intake, lactation, milk yield, 2030  
   glucose challenge, leptin, 883  
   internal teat seal, mastitis, 3899  
   milk production, lactation, bovine, 3027  
 DVE-OEB system, dairy cow, forage, NRC-2001 model, 2178  
 dystocia, Holstein, perinatal mortality, birth weight, 3745  
 threshold model, genetic evaluation, calving ease, 3366  
   calving ease, 1845
- E**
- early lactation, fatty liver, glucagon, dairy cow, 3138  
   intake, production, dry cow, 2397  
 East Friesian, machine stripping, parlor throughput, dairy ewe, 680  
 eating behavior, pH, rumination, rumen, 3343  
 ecology, population genetics, dairy food safety, *Listeria monocytogenes*, 1865  
 economics, DAFOSYM, robotic milking, farm simulation, 4167  
   dairy, detection of estrus, statistical process control, 3516  
   feeding system, grazing, 808  
   heifer, mastitis, intramammary infection, 1187  
   new uses, returns to research, research and development, 1662  
 economy, policy, environment, 1019  
 Edam cheese, cow's milk allergy, allergen absorption,  $\beta$ -lactoglobulin, 464  
 effect of disease, organic farming, herd health, milk production, 3174  
 effective fiber, pH, rumination, rumen, 1445  
 egg powder, buttermilk solids, nonfat dried milk, soy protein isolate, 746  
 eicosanoid, tumor necrosis factor alpha, mammary gland, immunology, 538  
 electron and fluorescence microscopy, *Lactobacillus* spp., peptidoglycan hydrolase, 96  
 embryo, vitamin E, selenium, fertility, 2343  
 emulsion, phase behavior, casein micelle, 764  
 encapsulation, lactic acid bacteria, sesame oil emulsion, biocapsule, 424  
 endogenous proteolysis, lipopolysaccharide, mastitis, casein, 1163  
 endotoxin, mastitis, dairy cow, lactation stage, 2327  
   lipopolysaccharide-binding protein, soluble CD-14, 3128  
 endotoxin mastitis, adhesion molecule, polymorphonuclear leukocyte, bovine, 2334  
 energy, Johne's disease, parturition, dairy cow, 3527  
 energy balance, genetics, selection, dairy bull, 2205  
   metabolism, lactation, reproduction, 2852  
   reproduction, leptin concentration, lactation, 799  
 energy density, lactation performance, dairy cattle, transition, 916  
   neutral detergent fiber, nonfiber carbohydrate, protein density, 1370  
 energy feeding system, energy requirement, prediction, dairy cow, 1415

- energy metabolism, dairy cow, lactation, 2904  
 energy requirement, heat stress, thermal comfort, body surface, 3605  
   prediction, dairy cow, energy feeding system, 1415  
 energy spilling, microbial N, microbial efficiency, conservation method of corn, 195  
 ensiling, cattle feeding, dairy product, 1325  
 enteral nutrition, lysinoalanine, thermal damage, cross-linked amino acids, 2283  
 environment, economy, policy, 1019  
   lactation, dairy, heat stress, 2131  
   regulation, air quality, animal science curricula, 1045  
 environmental definition, genotype  $\times$  environment interaction, heterogeneous genetic variance, milk yield, 2470  
 environmental parameter, genotype  $\times$  environmental interaction, random regression model, environmental sensitivity, 3756  
 environmental sensitivity, environmental parameter, genotype  $\times$  environmental interaction, random regression model, 3756  
 enzymatic hydrolysis, gelation kinetics, renneting, heated milk, 1548  
 enzyme, chewing behavior, feeding behavior, ruminal pH, 565  
   milk, high-intensity pulsed electric field, protease, 697  
 epidemiology, floor system, lameness, claw disorder, 2082  
*Escherichia coli*, bacterial iron uptake, FecA, immunoglobulin, 133  
   cattle, forage, feeding, 852  
   FecA, phagocytosis, 146  
   mastitis, CD14, lipopolysaccharide, 2382  
   susceptibility, antimicrobials, 3927  
   copper, 1240  
 ester accumulation, Parmesan cheese, esterase, 2818  
 esterase, ester accumulation, Parmesan cheese, 2818  
   nucleotide sequencing, purification, *Lactobacillus casei*, 1118  
 estrogen receptor  $\alpha$ , growth hormone, mammary, ovariectomy, 2098  
 estrous detection, statistical process control, Shewhart, cumulative sum, 1970  
 estrus, anovulation, conception rate, Ovsynch, 3184  
 ewe cheese, ripening, volatile free fatty acid, 3102  
 ewe milk, microbial inhibitor test, detection limit, antimicrobial, 457  
   microbiological screening test, BRT AiM, Delvotest, 1947  
 ewe milk, somatic cell count, Fossomatic method, direct microscopic method, 138  
   frozen milk, 2583  
 exercise, training, physical fitness, acid-base status, 2839  
 exopolysaccharide, lactic acid bacteria, *Streptococcus thermophilus*, 407  
   *Lactococcus lactis*, restriction fragment length polymorphism, 1472  
   restriction fragment length polymorphism, 1472  
   rheology, confocal laser scanning microscopy, yogurt, 1632  
   *Streptococcus thermophilus* 1275, whey protein concentrate, adjunct culture, 3405  
 extended lactation, pregnancy, apoptosis, multiphasic lactation curve model, 988  
 extension method, practice adoption, team problem solving, 1849  
 extracellular matrix, mammary, prepubertal, 2864  
 extrusion, texturization, whey protein, functionality, 3775
- F**
- farm location, relocation, survey, 3473  
 farm simulation, economics, DAFOSYM, robotic milking, 4167  
 fat, milk, pasture, conjugated linoleic acid, 644  
   periparturient cow, propylene glycol, 2113  
 fat globule, homogenization, Mozzarella, free oil, 712  
   rheology, free oil, cheese, 755  
 fat supplementation, conjugated linoleic acid, grazing dairy cow, 3237  
 fatty acid composition, butter texture, dairy cow, 3122  
 fatty acids, flaxseed, milk production, sunflower, 2637  
   forage, goat, rumen bacteria, 2940  
   hard ewe's milk cheese, ovine, somatic cell count, 3082  
   hepatic metabolism, monolayer culture, fatty liver, 2390  
   hepatic uptake, 1218  
   high corn oil, forage concentration, milk, 2428  
   legume, rumen biohydrogenation, digesta kinetics, 2612  
   lipoprotein lipase, lipolysis, goat milk fat, 1751  
   fatty acids, hepatic metabolism, monolayer culture, 2390  
 fatty liver, glucagon, dairy cow, early lactation, 3138  
   lipoprotein, dairy cow, 2895  
   left-displaced abomasum, dairy cow, 1465  
 feather meal, milk composition, docosahexaenoic acid, fish meal, 861  
 FecA, immunoglobulin, *Escherichia coli*, bacterial iron uptake, 133  
   phagocytosis, *Escherichia coli*, 146  
 feed additive, milk production, fibrolytic enzyme, malic acid, 576

- feed efficiency, heifer growth, protein energy ratio, 268  
 feed intake, dairy cow, subacute ruminal acidosis, sodium bicarbonate, 954  
   intake model, prediction equation, Holstein, 309  
   lactation, milk yield, dry period, 2030  
 feeding, *Escherichia coli*, cattle, forage, 852  
   waste milk, health, calf management, 3963  
 feeding behavior, dairy cow, feeding pattern, push-up, 4079  
   stage of lactation, 3354  
   dairy cow, validation, 3571  
   intake, nutrient utilization, conservation method of corn, 174  
   milk yield, cow behavior, automatic milking system, 1494  
   propionate infusion, ammonium, urea synthesis, 1398  
   ruminal pH, enzyme, chewing behavior, 565  
   stage of lactation, glucose demand, propionate infusion, 2922  
 feeding pattern, push-up, feeding behavior, dairy cow, 4079  
 feeding system, grazing, economics, 808  
 female fertility, genetic trend, model validation, 4090  
   nonreturn rate, variance component, genetic change, 2706  
 fermentable carbohydrate, forage particle size, production, rumen fermentation, 1382  
 fermentation, gastrointestinal digestion, angiotensin-I-converting enzyme inhibitory peptide, 429  
   microbial efficiency, beet pulp, high-moisture corn, 3562  
   NaOH, in situ degradation, hen meal, 3337  
 fermented milk, *Bifidobacterium* spp., blood lipid, 2452  
 fertility, biotin, claw lesion, milk production, 3953  
   embryo, vitamin E, selenium, 2343  
   insemination information, calving interval, 4093  
   random regression, body weight, body condition score, 3704  
   selection index, body weight, body condition score, 2193  
 Feta cheese, yeast, probiotic, cholesterol, 3416  
 fiber attachment, ruminal cellulolytic bacteria, competitive PCR, 1429  
 fibrolytic enzyme, digestion process, milk production, dairy cow, 546  
   malic acid, feed additive, milk production, 576  
 firmness, oleic acid, linoleic acid, conjugated linoleic acid, 70  
 fish meal, feather meal, milk composition, docosahexaenoic acid, 861  
   milk, butter, Cheddar cheese, 2568  
 flavor release, ice cream, time intensity study, melting, 1130  
 flavoring capacity, microbial diversity, natural whey culture, water-buffalo Mozzarella cheese, 486  
 flaxseed, milk production, sunflower, fatty acids, 2637  
   omega-3 fatty acids, immune response, dairy cow, 2647  
 floor system, lameness, claw disorder, epidemiology, 2082  
 flow behavior index, glycomacropeptide, high pressure and temperature, consistency coefficient, 1535  
 flow cytometry, low somatic cell count milk, differential leukocyte count, 828  
 fluorescence spectroscopy, chemometrics, riboflavin, yogurt, 2508  
   parallel factor analysis, cheese, chemometrics, 1101  
 foodborne pathogen, goat's and ewe's milk, microbiological quality, prevalence, 3849  
 forage, dairy cow, phosphorus requirement, phosphorus excretion, 3300  
   feeding, *Escherichia coli*, cattle, 852  
   goat, rumen bacteria, fatty acid, 2940  
   neutral detergent fiber, brown midrib, corn silage, 3667  
   NRC-2001 model, DVE-OEB system, dairy cow, 2178  
   water quality, riparian buffer, manure, 2243  
 forage concentration, milk, fatty acid, high corn oil, 2428  
 forage particle length, rumination, cottonseed hull, 2438  
 forage particle size, production, rumen fermentation, fermentable carbohydrate, 1382  
 forage-to-concentrate ratio, linseed oil, ruminal digestion, dairy cow, 3999  
 Fossomatic method, direct microscopic method, ewe milk, somatic cell count, 138  
   frozen milk, ewe milk, somatic cell count, 2583  
 fractal, rennet, aggregation, casein, 2504  
 fractionated milk fat, milk-derived component, reformulated cream, physical property, 3395  
 fractionation, milk fat, short-path distillation, crystallization, 735  
 free oil, cheese, fat globule, rheology, 755  
   cheese curd, cooking, stretching, 449  
   fat globule, homogenization, Mozzarella, 712  
 free-stall base, staff use, cow preference, stocking density, 2253  
 freezing, acidifying activity, *Lactobacillus* spp., lactic acid bacteria, 3048  
 freezing point, milk and cream, carbon dioxide, pH, 1578  
   serum protein, carbon dioxide, casein, 1590  
 frozen dairy dessert, nonfat ice cream, low-fat ice cream, microfluidization, 1157  
 frozen milk, ewe milk, somatic cell count, Fossomatic method, 2583

- frozen storage, meltability, Mozzarella cheese, stretchability, 1108
- functional herd life, Holstein, survival analysis, type trait, 4083
- functional property, casein, milk salts, cheese structure and texture, 2725
- dephosphylated  $\beta$ -casein, molecular dynamics, lipid-protein interaction, 3876
  - sweet whey powder, physicochemical, 3866
  - whipping cream, cholesterol removal,  $\beta$ -cyclodextrin, 2767
- functional trait, Holstein cattle, quantitative trait loci, 360
- functionality, direct acidification, Mozzarella cheese, calcium, 1918
- extrusion, texturization, whey protein, 3775
  - texture, storage, Mozzarella cheese, 2790
- ## G
- $\beta$ -galactosidase, *Kluyveromyces lactis*, bioreactor design, milk hydrolysis, 2783
- gas liquid chromatography, *Lactobacillus* spp., probiotics, conjugated linoleic acid, 1941
- gastrointestinal digestion, angiotensin-I-converting enzyme inhibitory peptide, fermentation, 429
- gelation kinetics, renneting, heated milk, enzymatic hydrolysis, 1548
- serum casein, transglutaminase, casein micelle, 1556
- gelation pH, plant coagulation, rheology, milk coagulation, 2558
- gene expression, milk protein, transcription factor binding site, camel, 498
- genetic analysis, milk production, body condition score, body type, 3685
- genetic change, female fertility, nonreturn rate, variance component, 2706
- threshold model, Bayesian methods, clinical mastitis, 369
- genetic component, body condition score, multivariate model, random regression model, 4123
- genetic correlation, body condition score, heritability, 2236
- genetic correlation matrix, covariance matrix, weighted bending, 677
- genetic diversity, Holstein, linkage disequilibrium, background linkage disequilibrium, 4137
- genetic evaluation, calving ease, dystocia, threshold model, 3366
- longitudinal threshold model, Bayesian methods, clinical mastitis, 2676
  - progeny testing, selection intensity, 3386
  - yield trait, lactation curve, test-day model, 3765
- genetic marker, DNA microsatellite, percentage exclusion, marker-assisted selection, 1818
- genetic merit, concentrate supplementation, grass dry matter intake, 610
- genetic merit prediction, lifetime profit, 4115
- genetic parameter, calf, mortality, heritability, 1807
- dairy sheep, somatic cell count, production trait, 1476
  - lactation curve, test-day model, 2480
  - milk urea nitrogen, 2462
- genetic polymorphism, genotyping, goat,  $\kappa$ -casein, 2715
- restriction enzyme, Ovar-DRB1 exon 2, PCR-RFLP, 3362
  - single-strand conformation polymorphism, goat,  $\kappa$ -casein, 3726
- genetic trend, model validation female fertility, 4090
- genetically enhanced crops, glyphosate-tolerant corn, production by dairy cattle, 1734
- genetically modified, Roundup Ready, YieldGard corn, herbicide tolerant, 1780
- genetically modified feed, milk, DNA digestion, digesta, 4070
- genetics, grazing, sire evaluation, 383
- selection, dairy bull, energy balance, 2205
- genotype  $\times$  environment interaction, Bayesian methods, structural model, covariance component, 1837
- conformation, housing, management, 661
  - herd clustering, international evaluation, 376
  - herd, test day, random regression, 3736
  - heterogeneous genetic variance, milk yield, environmental definition, 2470
  - production system, international evaluation, 1009
  - random regression model, environmental sensitivity, environmental parameter, 3756
- genotyping, goat,  $\kappa$ -casein, genetic polymorphism, 2715
- Giardia* spp., soil, risk, *Cryptosporidium* spp., 784
- glucagon, dairy cow, early lactation, fatty liver, 3138
- injection, metabolism, 2072
  - lipoprotein, dairy cow, fatty liver, 2895
- glucogenic source, dairy cow, amino acid, grass silage, 3249
- gluconeogenesis, hepatic lipodosis, dairy cow, choline, 1722
- glucose, amino acid, grass silage, dairy cow, 3260
- dairy cow, milk composition, propionic acid, 243
  - sheep, ketosis, Ca<sup>2+</sup>, 1953
- glucose challenge, leptin, dry period, 883
- glucose demand, propionate infusion, feeding behavior, stage of lactation, 2922
- glycomacropptide, high pressure and temperature, consistency coefficient, flow behavior index, 1535
- glyphosate tolerant, corn rootworm protection, corn hybrid, dairy cow, 1707
- glyphosate-tolerant corn, production by dairy cattle, genetically enhanced crops, 1734

- GnRH, ovulation, conception, cow, 2012  
 goat, rumen bacteria, fatty acid, forage, 2940  
    $\kappa$ -casein, genetic polymorphism, genotyping, 2715  
     single-strand conformation polymorphism, 3726  
 goat milk, resected rat, protein utilization, magnesium bioavailability, 2958  
 goat milk fat, fatty acids, lipoprotein lipase, lipolysis, 1751  
 goat's and ewe's milk, microbiological quality, prevalence, foodborne pathogen, 3849  
 Gompertz model, milk bacteria, carbon dioxide, conductance, 1932  
 gossypol, milk yield, Pima cottonseed, Upland cottonseed, 254  
   reproduction, dairy cow, cottonseed, 892  
 grass, dry matter intake, genetic merit, concentrate supplementation, 610  
   nonfiber carbohydrate, sucrose, 3983  
 grass silage, dairy cow, glucose, amino acid, 3260  
   glucogenic source, dairy cow, amino acid, 3249  
 grazing, economics, feeding system, 808  
   pasture, bermudagrass, 1268  
   sire evaluation, genetics, 383  
 grazing dairy cow, fat supplementation, conjugated linoleic acid, 3237  
   steam-flaked corn, nonforage fiber source, milk, 906  
 growth, lasalocid, nitrogen utilization, dairy goat, 3967  
 growth factor, intestine, newborn, hormone, 1797  
 growth hormone, dairy cow, amino acid partition, three-times daily milking, 2409  
   lactation, leptin, insulin, 3508  
   mammary, ovariectomy, estrogen receptor  $\alpha$ , 2098  
   milking frequency, milk yield, mammary gland, 509  
   receptor, parturition, 3933  
 growth hormone receptor, liver, dairy cattle, 3920  
 Guernsey, lactation record, international genetic evaluation, 1821
- H**
- handedness, management, laterality, asymmetry, 3167  
 hard ewe's milk cheese, ovine, somatic cell count, fatty acids, 3082  
 harmonized tariff schedule, milk protein concentrate, tariff rate quota, 4155  
 health, calf management, feeding, waste milk, 3963  
   lactoferrin, weaning, calf, 1458  
 heat stress, environment, lactation, dairy, 2131  
   milk temperature, lactation, intake, 232  
   primiparous cow, dietary fat, 1306  
   seasonality, month of calving, days open, 3718  
   thermal comfort, body surface, energy requirement, 3605  
   heated milk, enzymatic hydrolysis, gelation kinetics, renneting, 1548  
 heifer, mammary gland development, linoleic acid, 2320  
   mastitis, intramammary infection, economics, 1187  
 heifer growth, protein energy ratio, feed efficiency, 268  
 heifer management, custom heifer growing, national survey, 3016  
 heifer metabolism, N balance, protein-to-energy ratio, 2170  
   protein-to-energy ratio, soluble protein, potentially rumen degradable protein, 2122  
 height of cutting, silage maturity, corn silage, 2163  
 hen meal, fermentation, NaOH, in situ degradation, 3337  
 hepatic lipidosis, dairy cow, choline, gluconeogenesis, 1722  
 hepatic metabolism, monolayer culture, fatty liver, fatty acids, 2390  
 hepatic uptake, fatty acids, 1218  
 herbicide tolerant, genetically modified, Roundup Ready, YieldGard corn, 1780  
 herd, test day, random regression, genotype  $\times$  environment interaction, 3736  
 herd clustering, international evaluation, genotype  $\times$  environment interaction, 376  
 herd expansion, culling, survival analysis, Holstein, 1482  
 herd health, milk production, effect of disease, organic farming, 3174  
 heritability, genetic correlation, body condition score, 2236  
   genetic parameter, calf, mortality, 1807  
 heterogeneity of residual variance, Bayesian analysis, random regression test-day model, 3374  
 heterogeneous genetic variance, milk yield, environmental definition, genotype  $\times$  environment interaction, 2470  
 heterosis, breed difference, crossbreeding, 1036  
 high corn oil, forage concentration, milk, fatty acid, 2428  
 high hydrostatic pressure, syneresis, yield stress, yogurt, 1074  
 high pressure and temperature, consistency coefficient, flow behavior index, glycomacropeptide, 1535  
 high pressure, lysozyme, nisin, *Bacillus cereus*, 3075  
 high producing dairy cow, pasture, supplementation, milk production and composition, 1  
 high-intensity pulsed electric field, protease, enzyme, milk, 697  
 high-moisture corn, fermentation, microbial efficiency, beet pulp, 3562  
   milk yield, ruminal fill, beet pulp, 3542  
   site of digestion, starch digestion, beet pulp, 3553

- high-pressure injection, ionic strength, syneresis, calcium, 60  
 phosphate, protein matrix, calcium, 3113  
 protein matrix, syneresis, calcium, 2751  
 Mozzarella, 105
- Hispanico cheese, proteolysis, volatile compound, nisin microparticle, 3038
- Holstein, feed intake, intake model, prediction equation, 309  
 herd expansion, culling, survival analysis, 1482  
 linkage disequilibrium, background linkage disequilibrium, genetic diversity, 4137  
 perinatal mortality, birth weight, dystocia, 3745  
 survival analysis, type trait, functional herd life, 4083
- Holstein cattle, quantitative trait loci, functional trait, 360
- homogenization, Mozzarella, free oil, fat globule, 712
- hormone, growth factor, intestine, newborn, 1797  
 mastitis, recombinant bovine tumor necrosis factor- $\alpha$ , metabolite, 819  
 metabolism, liver, lipopolysaccharide, 3447
- horn, biomechanics, dairy cattle, lameness, 2875
- housekeeping gene, liver, dairy cow, 3423
- housing, management, genotype  $\times$  environment interaction, conformation, 661
- human milk, bovine milk, bacterial lectin, milk analysis, 2276
- human  $\beta$ -casein, milk micelles, chaotrophic agent, lithium chloride, 78  
 reconstituted milk micelle, protein-ion interactions, bovine  $\kappa$ -casein, 2269
- human/bovine lactation, milk oligosaccharide, infant formula, 52
- 2-hydroxy-4-(methylthio) butanoic acid, methionine, bacterial community analysis, continuous culture fermenter, 2629
- hydroxyl radical scavenging, antioxidant activity, reducing activity, sulfhydryl group, 1541
- hypocalcemia, dietary cation-anion difference, pasture, potassium, 979  
 pasture, dietary cation-anion difference, 2658
- I
- ice cream, time intensity study, melting, flavor release, 1130
- IGF binding protein, neonatal calf, colostrum, IGF-1, 2022
- imbalance, leukotriene B4, lipoxin A4, chronic mastitis, 3430
- immune function, ascorbic acid, cattle, 622
- immune response, dairy cow, flaxseed, omega-3 fatty acids, 2647  
 leptin gene, allelic variation, milk production, 3164  
 immunoglobulin, colostrum, calf, pasteurization, 1503  
*Escherichia coli*, bacterial iron uptake, FecA, 133  
 immunoglobulin G, colostrum, reverse micelle, 1639  
 immunology, eicosanoid, tumor necrosis factor alpha, mammary gland, 538  
 in situ, in vitro, biohydrogenation, canola, 351  
 in situ degradation, hen meal, fermentation, NaOH, 3337  
 in vitro, polyunsaturated fatty acids, biohydrogenation, conjugated linoleic acid, 4054  
 in vivo degradation rate, dairy cow, protein supplementation, 835  
 in vivo transfection, vulva mucosa, jet-injection, protein A, 1177  
 inbreeding, survival, Jersey, type trait, 2984  
 inbreeding depression, milk yield, days to first service, incomplete pedigree, 2967  
 incomplete pedigree, inbreeding depression, milk yield, days to first service, 2967  
 index selection, regression coefficient, persistency, lactation curve, 1487  
 industry, university, undergraduate, dairy herd management, 1029  
 infant formula, human/bovine lactation, milk oligosaccharide, 52  
 injection, metabolism, glucagon, 2072  
 inoculation, mechanical processing, maturity, corn silage, 287  
 insemination information, calving interval, fertility, 4093  
 insulin, growth hormone, lactation, leptin, 3508  
 protein utilization, insulin-like growth factor-I, bovine somatotropin, 275  
 insulin-like growth factor-I, bovine somatotropin, insulin, protein utilization, 275  
 intake, heat stress, milk temperature, lactation, 232  
 nutrient utilization, conservation method of corn, feeding behavior, 174  
 production, dry cow, early lactation, 2397  
 intake model, prediction equation, Holstein, feed intake, 309  
 interaction, milk fat globule, milk, 3110  
 interferon, lymphocyte, mammary gland, periparturient immunosuppression, 2359  
 neonatal calf nutrition, nitric oxide, developmental immunity, 3592  
 internal teat seal, mastitis, dry period, 3899  
 internal teat sealant, intramammary infection, Orbe-seal, antibiotic, 3912  
 international evaluation, genotype  $\times$  environment interaction, herd clustering, 376  
 production system, 1009

- international genetic evaluation, Guernsey, lactation record, 1821
- interval mapping, quantitative trait, cofactor, dairy cattle, 1828
- intestine, newborn, hormone, growth factor, 1797
- intramammary infection, pulsation rate, somatic cell count, teat thickness, 530
- Orbeseal, antibiotic, internal teat sealant, 3912
  - somatic cell score, productive life, udder type trait, 2684
  - economics, heifer, mastitis, 1187
- intravaginal progesterone insert, concentration of progesterone in milk, dairy cow, 2050
- intravaginal progesterone intravaginal insert, resynchronization of estrus, dairy cow, 2039
- investment, cost, design, dairy farm, 3536
- involution, mammary gland, secretion, tight junction, 1250
- iodine, *Staphylococcus aureus*, *Streptococcus agalactiae*, teat dip, 3783
- ionic strength, syneresis, calcium, high-pressure injection, 60
- J**
- Jersey, type trait, inbreeding, survival, 2984
- jet-injection, protein A, in vivo transfection, vulva mucosa, 1177
- Johne's disease, parturition, dairy cow, energy, 3527
- K**
- kernal processor, amino acids, corn silage, 3675
- ketosis, Ca<sup>2+</sup>, glucose, sheep, 1953
- Kluyveromyces lactis*, bioreactor design, milk hydrolysis,  $\beta$ -galactosidase, 2783
- L**
- lactating cow, dietary cation-anion difference, pasture, 970
- lactating dairy cow, monensin, milk fat, diet, 4161
- lactation curve, index selection, regression coefficient, persistency, 1487
- test-day model, genetic evaluation, yield trait, 3765
  - genetic parameter, 2480
- lactation, bovine, dry period, milk production, 3027
- dairy, heat stress, environment, 2131
  - energy balance, reproduction, leptin concentration, 799
  - energy metabolism, dairy cow, 2904
  - intake, heat stress, milk temperature, 232
  - leptin, insulin, growth hormone, 3508
  - milk yield, dry period, feed intake, 2030
- lactation, energy balance, metabolism, 2852
- transition cow, conjugated linoleic acid, milk fat, 3218
- lactation performance, dairy cattle, transition, energy density, 916
- lactation record, international genetic evaluation, Guernsey, 1821
- lactation stage, endotoxin, mastitis, dairy cow, 2327
- lactic acid bacteria, freezing, acidifying activity, *Lactobacillus* spp., 3048
- moisture, crack, nonstarter, 719
  - sesame oil emulsion, biocapsule, encapsulation, 424
- Streptococcus thermophilus*, exopolysaccharide, 407
- Lactobacillus acidophilus*, *Lactobacillus casei*, *Lactobacillus rhamnosus*, propionibacteria, 2288
- Lactobacillus buchneri*, *Lactobacillus fermentum*, *Leuconostoc mesenteroides*, crimped grain preservation, 1789
- Lactobacillus plantarum*, silage, aerobic stability, 3575
  - silage, aerobic stability, 336
- Lactobacillus casei*, arylesterase, nucleotide sequencing, purification, 2547
- esterase, nucleotide sequencing, purification, 1118
  - Lactobacillus rhamnosus*, propionibacteria, *Lactobacillus acidophilus*, 2288
- Lactobacillus fermentum*, *Leuconostoc mesenteroides*, crimped grain preservation, *Lactobacillus buchneri*, 1789
- Lactobacillus plantarum*, silage, aerobic stability, *Lactobacillus buchneri*, 3575
- Lactobacillus rhamnosus*, propionibacteria, *Lactobacillus acidophilus*, *Lactobacillus casei*, 2288
- Lactobacillus* spp., lactic acid bacteria, freezing, acidifying activity, 3048
- nonstarter lactic acid bacteria, cheese flavor, 2773
  - peptidoglycan hydrolase, electron and fluorescence microscopy, 96
  - probiotics, conjugated linoleic acid, gas liquid chromatography, 1941
- Lactococcus lactis*, restriction fragment length polymorphism, exopolysaccharide, 1472
- Lactococcus* spp., peptidase, protease, cheese ripening, 1139
- lactoferrin, weaning, calf, health, 1458
- $\beta$ -lactoglobulin, Edam cheese, cow's milk allergy, allergen absorption, 464
- lactose reduction, pilot-scale process, ultrafiltration, calcium retention, 2761
- lactose transporter, *Staphylococcus aureus*, mastitis, 2373
- lactulose, C-reactive protein, bactericidal activity, colostrum, 3313

- lameness, biotin supplementation, survival analysis, white line disease, 2577  
 claw disorder, epidemiology, floor system, 2082  
 horn, biomechanics, dairy cattle, 2875
- lasalocid, nitrogen utilization, dairy goat, growth, 3967
- laterality, asymmetry, handedness, management, 3167
- left-displaced abomasum, dairy cow, fatty liver, 1465
- legume, rumen biohydrogenation, digesta kinetics, fatty acid, 2612
- length of fermentation, tropical silage, round bales, storage method, 926
- leptin, dry period, glucose challenge, 883  
 insulin, growth hormone, lactation, 3508  
 leptin receptor, cattle, 2369  
 metabolic and endocrine status, concentrate, dairy cow, 1690  
 nutrition, puberty, development, 3206
- leptin concentration, lactation, energy balance, reproduction, 799
- leptin gene, allelic variation, milk production, immune response, 3164
- leptin receptor, cattle, leptin, 2369
- Leuconostoc mesenteroides*, crimped grain preservation, *Lactobacillus buchneri*, *Lactobacillus fermentum*, 1789
- leukotriene B4, lipoxin A4, chronic mastitis, imbalance, 3430
- lifetime profit, genetic merit prediction, 4115
- linkage disequilibrium, background linkage disequilibrium, genetic diversity, Holstein, 4137
- linkage mapping, candidate gene, variance analysis, casein promoter, 2696
- linoleic acid, conjugated linoleic acid, firmness, oleic acid, 70  
 heifer, mammary gland development, 2320  
 solin, milk fat, very low density lipoprotein, 1742
- linseed oil, ruminal digestion, dairy cow, forage-to-concentrate ratio, 3999
- lipase enzyme, psychrotroph, *Serratia marcescens*, lipolytic activity, 127
- lipid oxidation, sensory, conjugated linoleic acid, milk, 43
- lipid-protein interaction, functional property, dephosphorylated  $\beta$ -casein, molecular dynamics, 3876
- lipopolysaccharide, mineral, vitamin D, 3440
- lipolysis, carbon dioxide, raw milk storage, proteolysis, 1616  
 goat milk fat, fatty acids, lipoprotein lipase, 1751  
 pasteurized fluid milk quality, somatic cell count, proteolysis, 2491  
 sensory threshold, milk off-flavor, proteolysis, 1601
- lipolytic activity, lipase enzyme, psychrotroph, *Serratia marcescens*, 127
- lipopolysaccharide, *Escherichia coli*, mastitis, CD14, 2382  
 hormone, metabolism, liver, 3447  
 mastitis, casein, endogenous proteolysis, 1163
- lipopolysaccharide-binding protein, soluble CD-14, endotoxin, mastitis, 3128
- lipoprotein, dairy cow, fatty liver, glucagon, 2895
- lipoprotein lipase, lipolysis, goat milk fat, fatty acids, 1751
- liposome, secondary microflora, ripening, nisin Z, 1895
- lipoxin A4, chronic mastitis, imbalance, leukotriene B4, 3430
- liquid egg, calf, alternative protein, 2622
- Listeria monocytogenes*, ecology, population genetics, dairy food safety, 1865
- lithium chloride, human  $\beta$ -casein, milk micelles, chaotropic agent, 78
- liver, dairy cattle, growth hormone receptor, 3920  
 dairy cow, housekeeping gene, 3423  
 lipopolysaccharide, hormone, metabolism, 3447  
 thyroid hormone, dairy cow, mammary gland, 152  
 transition, portal-drained viscera, 1201
- logistic regression, negative energy balance, reproduction, body condition score, 2308
- longitudinal threshold model, Bayesian methods, clinical mastitis, genetic evaluation, 2676
- low somatic cell count milk, differential leukocyte count, flow cytometry, 828
- low-fat ice cream, microfluidization, frozen dairy dessert, nonfat ice cream, 1157
- luteinizing hormone, ovulation, ovarian cyst, 1963
- lymphocyte, mammary gland, periparturient immunosuppression, interferon, 2359
- lymphoid tissue, cell proliferation, apoptosis, neonatal calf, 3321
- lysinoalanine, thermal damage, cross-linked amino acids, enteral nutrition, 2283
- lysozyme, nisin, *Bacillus cereus*, high pressure, 3075

## M

- machine stripping, parlor throughput, dairy ewe, East Friesian, 680
- macro in situ, chop length, corn silage hybrid, mechanical processing, 3271
- magnesium bioavailability, goat milk, resected rat, protein utilization, 2958
- magnetic resonance imaging, Mozzarella cheese, T2 relaxation, self-diffusion coefficient, 2525
- malic acid, feed additive, milk production, fibrolytic enzyme, 576
- maman oligosachharide, milk replacer, antibiotic, calf, 4064

- mammary, ovariectomy, estrogen receptor  $\alpha$ , growth hormone, 2098  
 prepubertal, extracellular matrix, 2864
- mammary blood flow, nitric oxide, dairy goat, 2094
- mammary epithelial cell, bovine leukemia virus, casein, 2826
- mammary function, dairy cow, amino acid, milk yield, 1436
- mammary gland, growth hormone, milking frequency, milk yield, 509  
 immunology, eicosanoid, tumor necrosis factor alpha, 538  
 liver, thyroid hormone, dairy cow, 152  
 modeling, milking frequency, nutrition, 1987  
 nutrition, milk production, 3148  
 periparturient immunosuppression, interferon, lymphocyte, 2359  
 secretion, tight junction, involution, 1250
- mammary gland development, linoleic acid, heifer, 2320
- mammary growth, milking frequency, milk yield, 2061
- management, genotype  $\times$  environment interaction, conformation, housing, 661  
 laterality, asymmetry, handedness, 3167
- manure, forage, water quality, riparian buffer, 2243
- marker-assisted selection, cattle microsatellite, quantitative trait loci, bovine chromosome 14, 2219  
 genetic marker, DNA microsatellite, percentage exclusion, 1818  
 quantitative trait loci, dairy cattle breeding, 667
- mastitis, antimicrobial drug susceptibility, *Staphylococcus aureus*, 3157  
 body condition score, dairy character, disease, 3730  
 casein, endogenous proteolysis, lipopolysaccharide, 1163  
 CD14, lipopolysaccharide, *Escherichia coli*, 2382  
 copper, *Escherichia coli*, 1240  
 dairy cow, lactation stage, endotoxin, 2327  
 dry period, internal teat seal, 3899  
 intramammary infection, economics, heifer, 1187  
 lactose transporter, *Staphylococcus aureus*, 2373  
 lipopolysaccharide-binding protein, soluble CD-14, endotoxin, 3128  
 milk quality, milk sample, dairy cow, 3466  
 somatic cell count, udder hygiene, 3460  
 nuclear factor  $\kappa$ B, dairy cow, 1259  
 recombinant bovine tumor necrosis factor-a, metabolite, hormone, 819  
 steroid, milk production, 792  
 susceptibility, antimicrobials, *Escherichia coli*, 3927
- mature milk, dairy cow, milk composition, colostrum, 2005
- maturity, corn silage, inoculation, mechanical processing, 287  
 mechanical processing, chop length, corn silage, 208  
 macro in situ, chop length, corn silage hybrid, 3271  
 maturity, corn silage, inoculation, 287  
 meltability, Mozzarella cheese, stretchability, frozen storage, 1108  
 melting, flavor release, ice cream, time intensity study, 1130  
 metabolic and biochemical response, probiotic bacteria, oxygen, 2537  
 metabolic and endocrine status, concentrate, dairy cow, leptin, 1690  
 metabolic parameter, monensin, transition dairy cow, controlled-release capsule, 1171  
 metabolism, glucagon, injection, 2072  
 lactation, reproduction, energy balance, 2852  
 liver, lipopolysaccharide, hormone, 3447  
 metabolite, hormone, mastitis, recombinant bovine tumor necrosis factor-a, 819  
 methane, rumen fermentation, *Yucca schidigera*, saponin, 3330  
 methionine, bacterial community analysis, continuous culture fermenter, 2-hydroxy-4-(methylthio) butanoic acid, 2629  
 nitrogen, urine, crude protein, 4033  
 protein digestibility, rumen undegradable protein, 958  
 methionine analog, body fat, body protein, transition, 3634  
 micelle microstructure,  $\beta$ -LG denaturation, milk, plasmin system, 728  
 microbial diversity, natural whey culture, water-buffalo Mozzarella cheese, flavoring capacity, 486  
 microbial efficiency, beet pulp, high-moisture corn, fermentation, 3562  
 conservation method of corn, energy spilling, microbial N, 195  
 microbial inhibitor test, detection limit, antimicrobial, ewe milk, 457  
 microbial N, microbial efficiency, conservation method of corn, energy spilling, 195  
 microbial protein, milk, allantoin, 1716  
 microbial synthesis, urinary and milk excretion, dairy cow, purine derivation, 1282  
 microbiological quality, prevalence, foodborne pathogen, goat's and ewe's milk, 3849  
 microbiological screening test, BRT AiM, Delvotest, ewe milk, 1947  
 microfiltration, supercritical fluid extraction, butter-milk, milk fat globule membrane, 2297  
 microfiltration, cheese, optimization, 1564  
 microfluidization, frozen dairy dessert, nonfat ice cream, low-fat ice cream, 1157  
 milk, abomasal infusion, conjugated linoleic acid, dairy cow, 1321

- aflatoxin, dairy sheep, carryover, 2667  
 allantoin, microbial protein, 1716  
 milk, butter, Cheddar cheese, fish meal, 2568  
   capillary electrophoresis, citric acid, phosphate, 86  
   casein, protein kinase, phosphorylation, 1147  
   cheese, analysis, paracasein, 469  
   dairy, cow, brewer's grain, 2914  
   DNA digestion, digesta, genetically modified feed, 4070  
   fatty acid, high corn oil, forage concentration, 2428  
   grazing dairy cow, steam-flaked corn, nonforage fiber source, 906  
   high-intensity pulsed electric field, protease, enzyme, 697  
   interaction, milk fat globule, 3110  
   lipid oxidation, sensory, conjugated linoleic acid, 43  
   pasture, conjugated linoleic acid, fat, 644  
   plasmin system, micelle microstructure,  $\beta$ -LG denaturation, 728  
 milk analysis, human milk, bovine milk, bacterial lectin, 2276  
 milk and cream, carbon dioxide, pH, freezing point, 1578  
 milk bacteria, carbon dioxide, conductance, Gompertz model, 1932  
 milk coagulation, gelation pH, plant coagulation, rheology, 2558  
 milk composition, colostrum, mature milk, dairy cow, 2005  
   docosahexaenoic acid, fish meal, feather meal, 861  
   propionic acid, glucose, dairy cow, 243  
 milk fat, breed, conjugated linoleic acid, desaturase index, 2588  
   dairy cattle, conjugated linoleic acid, 3229  
   Dairy Herd Improvement, milk urea nitrogen, milk protein, 3008  
   diet, lactating dairy cow, monensin, 4161  
   lactation, transition cow, conjugated linoleic acid, 3218  
   particle size, tallow, corn silage, 2949  
   short-path distillation, crystallization, fractionation, 735  
   unsaturated oil, rumenic acid, biohydrogenation, 1354  
   very low density lipoprotein, linoleic acid, solin, 1742  
 milk fat depression, dairy cow, volatile fatty acid, rumen fermentation, 3620  
 milk fat globule, milk, interaction, 3110  
 milk fat globule membrane, microfiltration, supercritical fluid extraction, buttermilk, 2297  
   buttermilk, dairy ingredient, 2744  
 milk fatty acids, conjugated linoleic acid, transvaccenic acid, 944  
   dairy cow, monensin, ruminal acidosis, 4043  
   dry period, dry matter intake, milk production, 870  
   milk hydrolysis,  $\beta$ -galactosidase, *Kluyveromyces lactis*, bioreactor design, 2783  
   milk leakage, udder health, automatic milking system, dairy cow, 3488  
   milk micelles, chaotrophic agent, lithium chloride, human  $\beta$ -casein, 78  
   milk off-flavor, proteolysis, lipolysis, sensory threshold, 1601  
   milk oligosaccharide, infant formula, human/bovine lactation, 52  
   milk parameter, multivariate analysis, bovine udder health, 1221  
   milk production and composition, high producing dairy cow, pasture, supplementation, 1  
   milk production, biotin, B vitamins, dairy cow, 2106  
     body condition score, body type, genetic analysis, 3685  
     dairy cow, fibrolytic enzyme, digestion process, 546  
     effect of disease, organic farming, herd health, 3174  
     fertility, biotin, claw lesion, 3953  
     fibrolytic enzyme, malic acid, feed additive, 576  
     immune response, leptin gene, allelic variation, 3164  
     lactation, bovine, dry period, 3027  
     mammary gland, modeling, nutrition, 3148  
     mastitis, steroid, 792  
     milk fatty acids, dry period, dry matter intake, 870  
     peripartum, selection, antibody, 169  
     pregnancy, pasture, reproduction, 777  
     silage, clover, alfalfa, 2598  
     somatic cell count, dairy goat, once daily milking, 1673  
     sunflower, fatty acids, flaxseed, 2637  
   milk protein concentrate, acidification, pizza cheese, 3841  
     tariff rate quota, harmonized tariff schedule, 4155  
   milk protein concentrate powder, proteolysis, reduced-fat Cheddar, 1608  
   milk protein, dairy cow, carbohydrate, rumen ammonia, 2416  
     milk fat, Dairy Herd Improvement, milk urea nitrogen, 3008  
     milk yield, Activator Protein-2,  $\beta$ -lactoglobulin, polymorphism, 2213  
     transcription factor binding site, camel, gene expression, 498  
   milk quality, milk sample, dairy cow, mastitis, 3466  
     somatic cell count, udder hygiene, mastitis, 3460  
   milk renneting parameters, dairy ewe, air quality, milk renneting parameters, 3881  
   milk replacer, antibiotic, calf, maman oligosachharide, 4064  
     plasma, calf, 586

- milk salts, cheese structure and texture, functional property, casein, 2725  
 milk sample, dairy cow, mastitis, milk quality, 3466  
 milk temperature, lactation, intake, heat stress, 232  
 milk urea nitrogen, genetic parameter, 2462  
   milk protein, milk fat, Dairy Herd Improvement, 3008  
   variation, multilevel modeling, 1653  
 milk yield, Activator Protein-2,  $\beta$ -lactoglobulin, polymorphism, milk protein, 2213  
   cow behavior, automatic milking system, feeding behavior, 1494  
   dairy cow, amino acid, three times-daily milking, 3309  
   days to first service, incomplete pedigree, inbreeding depression, 2967  
   dry period, feed intake, lactation, 2030  
   environmental definition, genotype  $\times$  environment interaction, heterogeneous genetic variance, 2470  
   mammary function, dairy cow, amino acid, 1436  
   mammary gland, growth hormone, milking frequency, 509  
   mammary growth, milking frequency, 2061  
   Pima cottonseed, Upland cottonseed, gossypol, 254  
   ruminal fill, beet pulp, high-moisture corn, 3542  
   transition period, dairy cow, bovine somatotropin, 3195  
   udder casting, 1985  
 milk yield and composition, dairy cow, wet corn gluten feed, ruminant, 844  
 milk yield trait, quantitative trait loci mapping, multivariate analysis, 999  
 milk-derived component, reformulated cream, physical property, fractionated milk fat, 3395  
 milking frequency, automatic milking system, cow traffic, behavior, 1997  
   cisternal size, udder health, ultrasonography, 2352  
   milk yield, mammary gland, growth hormone, 509  
   mammary growth, 2061  
   nutrition, mammary gland, modeling, 1987  
 mineral, vitamin D, lipopolysaccharide, 3440  
 mineral environment, concentrated milk, yield stress, casein micelle aggregation, 3813  
 mixture model, somatic cell score, udder health, Bayesian methods, 3694  
 model, prefresh transition period, dry matter intake, 1771  
 model comparison, random regression model, somatic cell score, dairy cattle, 4103  
 model evaluation, National Research Council, accuracy, prediction bias, 344  
 model validation, female fertility, genetic trend, 4090  
 modeling, milking frequency, nutrition, mammary gland, 1987  
   nutrition, milk production, mammary gland, 3148  
 moisture, crack, nonstarter, lactic acid bacteria, 719  
   particle size, sieve, 1858  
 molar mass, whey protein, size-exclusion chromatography, multi-angle laser light scattering, 3090  
 molecular dynamics, lipid-protein interaction, functional property, dephosphylated  $\beta$ -casein, 3876  
 monensin, milk fat, diet, lactating dairy cow, 4161  
   ovarian activity, ovulation, dairy cow, 3498  
   ruminal acidosis, milk fatty acids, dairy cow, 4043  
   soybean oil, trans fatty acid, ruminal microorganism, 324  
   transition dairy cow, controlled-release capsule, metabolic parameter, 1171  
 monolayer culture, fatty liver, fatty acids, hepatic metabolism, 2390  
 month of calving, days open, heat stress, seasonality, 3718  
 mortality, heritability, genetic parameter, calf, 1807  
 Mozzarella, free oil, fat globule, homogenization, 712  
   high-pressure injection, protein matrix, syneresis, 105  
 Mozzarella cheese, calcium, functionality, direct acidification, 1918  
   functionality, texture, storage, 2790  
   stretchability, frozen storage, meltability, 1108  
   T2 relaxation, self-diffusion coefficient, magnetic resonance imaging, 2525  
 multi-angle laser light scattering, molar mass, whey protein, size-exclusion chromatography, 3090  
 multilevel modeling, milk urea nitrogen, variation, 1653  
 multiphasic lactation curve model, extended lactation, pregnancy, apoptosis, 988  
 multivariate analysis, bovine udder health, milk parameter, 1221  
   milk yield trait, quantitative trait loci mapping, 999  
 multivariate model, random regression model, genetic component, body condition score, 4123
- N**
- N balance, protein-to-energy ratio, heifer metabolism, 2170  
 N metabolism, pasture, substitution rate, nutrient digestion, 1330  
   substitution rate, nutrient digestion, 1341  
 NaOH, in situ degradation, hen meal, fermentation, 3337  
 National Research Council, accuracy, prediction bias, model evaluation, 344  
 national survey, heifer management, custom heifer growing, 3016

- natural whey culture, water-buffalo Mozzarella cheese, flavoring capacity, microbial diversity, 486
- negative energy balance, reproduction, body condition score, logistic regression, 2308
- neonatal calf, colostrum, IGF-1, IGF binding protein, 2022
- lymphoid tissue, cell proliferation, apoptosis, 3321
- neonatal calf nutrition, nitric oxide, developmental immunity, interferon, 3592
- net energy for lactation, digestibility, nutrition level, 3992
- neutral detergent fiber, nonfiber carbohydrate, protein density, energy density, 1370
- particle size, dairy cow, rumen pH, 3611
- neutrophil, *Staphylococcus aureus*, sIgA, opsonization, 2884
- new uses, returns to research, research and development, economics, 1662
- newborn, hormone, growth factor, intestine, 1797
- nisin microparticle, Hispanico cheese, proteolysis, volatile compound, 3038
- nisin, *Bacillus cereus*, high pressure, lysozyme, 3075
- nisin Z, liposome, secondary microflora, ripening, 1895
- nitric oxide, dairy goat, mammary blood flow, 2094
- developmental immunity, interferon, neonatal calf nutrition, 3592
- nitrogen balance, commercial dairy, western United States, 4178
- nitrogen excretion, coated urea, nitrogen metabolism, 2154
- nitrogen excretion, rumen undegradable protein, urea, 1681
- nitrogen metabolism, nitrogen balance, nitrogen excretion, coated urea, 2154
- nitrogen supplementation, rumen function, bovine milk fatty acid profile, 4020
- rumen synchrony, corn silage, dairy cow, 4008
- nitrogen utilization, dairy goat, growth, lasalocid, 3967
- nitrogen, urine, crude protein, methionine, 4033
- nonfat dried milk, soy protein isolate, egg powder, buttermilk solids, 746
- nonfat ice cream, low-fat ice cream, microfluidization, frozen dairy dessert, 1157
- nonfiber carbohydrate, protein density, energy density, neutral detergent fiber, 1370
- sucrose, grass, 3983
- nonforage fiber source, milk, grazing dairy cow, steam-flaked corn, 906
- nonreturn rate, variance component, genetic change, female fertility, 2706
- nonstarter, lactic acid bacteria, moisture, crack, 719
- nonstarter lactic acid bacteria, aging temperature, calcium lactate crystallization, Cheddar cheese, 2516
- cheese flavor, *Lactobacillus* spp., 2773
- NRC-2001 model, DVE-OEB system, dairy cow, forage, 2178
- nuclear factor  $\kappa$ B, dairy cow, mastitis, 1259
- nucleotide sequencing, purification, *Lactobacillus casei*, arylesterase, 2547
- esterase, 1118
- nutrient digestibility, corn silage hybrid, dairy cow, 2932
- nutrient digestion, N metabolism, pasture, substitution rate, 1330, 1341
- soyhulls, nutrient passage to the duodenum, rumen fermentation, 1052
- nutrient passage to the duodenum, rumen fermentation, nutrient digestion, soyhulls, 1052
- nutrient utilization, conservation method of corn, feeding behavior, intake, 174
- nutrition, mammary gland, modeling, milking frequency, 1987
- milk production, mammary gland, modeling, 3148
- puberty, development, leptin, 3206
- nutrition level, net energy for lactation, digestibility, 3992
- O**
- odd-chain fatty acid, conjugated linoleic acid,  $\Delta$ 9-desaturase, principal component analysis, 4047
- odor activity, purge-trap, Parmigiano Reggiano cheese, aroma, 770
- oleic acid, linoleic acid, conjugated linoleic acid, firmness, 70
- omega-3 fatty acids, immune response, dairy cow, flaxseed, 2647
- once daily milking, milk production, somatic cell count, dairy goat, 1673
- opsonization, neutrophil, *Staphylococcus aureus*, sIgA, 2884
- optimization, microfiltration, cheese, 1564
- Orbeseal, antibiotic, internal teat sealant, intramammary infection, 3912
- organic farming, herd health, milk production, effect of disease, 3174
- outlier detection, yield adjustment, test day, abnormal yield, 2721
- Ovar-DRB1 exon 2, PCR-RFLP, genetic polymorphism, restriction enzyme, 3362
- ovarian activity, ovulation, dairy cow, monensin, 3498
- ovarian cyst, luteinizing hormone, ovulation, 1963
- ovariectomy, estrogen receptor  $\alpha$ , growth hormone, mammary, 2098
- overmilking, somatic cell count, teat thickness, vacuum level, 3891
- ovine, somatic cell count, fatty acids, hard ewe's milk cheese, 3082

Ovsynch, estrus, anovulation, conception rate, 3184  
 prostaglandin F<sub>2α</sub>, reproduction, presynchronization, 3215  
 ovulation, conception, cow, GnRH, 2012  
 ovulation, dairy cow, monensin, ovarian activity, 3498  
 ovarian cyst, luteinizing hormone, 1963  
 oxidative stability, whey flavor, starter culture, 439  
 oxygen, metabolic and biochemical response, probiotic bacteria, 2537

## P

paracasein, milk, cheese, analysis, 469  
 parallel factor analysis, cheese, chemometrics, fluorescence spectroscopy, 1101  
 parlor throughput, dairy ewe, East Friesian, machine stripping, 680  
 Parmesan cheese, esterase, ester accumulation, 2818  
 Parmigiano Reggiano cheese, aroma, odor activity, purge-trap, 770  
 particle size, dairy cow, rumen pH, neutral detergent fiber, 3611  
 sieve, moisture, 1858  
 tallow, corn silage, milk fat, 2949  
 parturition, dairy cow, energy, Johne's disease, 3527  
 growth hormone, receptor, 3933  
 pasteurization, immunoglobulin, colostrum, calf, 1503  
 pasteurized fluid milk quality, somatic cell count, proteolysis, lipolysis, 2491  
 pasture, bermudagrass, grazing, 1268  
 conjugated linoleic acid, fat, milk, 644  
 dietary cation-anion difference, hypocalcemia, 2658  
 lactating cow, dietary cation-anion difference, 970  
 potassium, hypocalcemia, dietary cation-anion difference, 979  
 reproduction, milk production, pregnancy, 777  
 substitution rate, nutrient digestion, N metabolism, 1330, 1341  
 supplementation, milk production and composition, high producing dairy cow, 1  
 PCR-RFLP, genetic polymorphism, restriction enzyme, Ovar-DRB1 exon 2, 3362  
 peptidase, protease, cheese ripening, *Lactococcus* spp., 1139  
 peptide profiling, Reggianito Argentino cheese, cheese ripening, proteolysis, 3831  
 peptidoglycan hydrolase, electron and fluorescence microscopy, *Lactobacillus* spp., 96  
 percentage exclusion, marker-assisted selection, genetic marker, DNA microsatellite, 1818  
 perinatal mortality, birth weight, dystocia, Holstein, 3745  
 peripartum, selection, antibody, milk production, 169  
 periparturient cow, propylene glycol, fat, 2113

periparturient immunosuppression, interferon, lymphocyte, mammary gland, 2359  
 persistency, lactation curve, index selection, regression coefficient, 1487  
 pH, freezing point, milk and cream, carbon dioxide, 1578  
 preimplantation embryo, bovine, urea, 1194  
 rumination, rumen, eating behavior, 3343  
 rumen, effective fiber, 1445  
 teat skin, 3951  
 pH in heat exchanger, temperature, pressure, carbon dioxide concentration, 3822  
 phagocytosis, *Escherichia coli*, FecA, 146  
 phase behavior, casein micelle, emulsion, 764  
 phosphate, milk, capillary electrophoresis, citric acid, 86  
 phosphate, protein matrix, calcium, high-pressure injection, 3113  
 phosphorus, diet modification, dairy farm, 3787  
 phosphorus balance, commercial dairy, western United States, 688  
 phosphorus excretion, forage, dairy cow, phosphorus requirement, 3300  
 phytase activity, starch digestibility, 3972  
 phosphorus requirement, phosphorus excretion, forage, dairy cow, 3300  
 phosphorylation, milk, casein, protein kinase, 1147  
 physical fitness, acid-base status, exercise, training, 2839  
 physical property, fractionated milk fat, milk-derived component, reformulated cream, 3395  
 physically effective neutral detergent fiber, chewing behavior, rumen pH, dairy cow, 630  
 physicochemical, functional property, sweet whey powder, 3866  
 phytase activity, starch digestibility, phosphorus excretion, 3972  
 pilot-scale process, ultrafiltration, calcium retention, lactose reduction, 2761  
 Pima cottonseed, Upland cottonseed, gossypol, milk yield, 254  
 pizza cheese, milk protein concentrate, acidification, 3841  
 plant coagulation, rheology, milk coagulation, gelation pH, 2558  
 plasma, calf, milk replacer, 586  
 plasma triglyceride, conjugated linoleic acid, vaccenic acid, rumen digesta, 3648  
 plasmin system, micelle microstructure,  $\beta$ -LG denaturation, milk, 728  
 policy, environment, economy, 1019  
 polymorphism, milk protein, milk yield, Activator Protein-2,  $\beta$ -lactoglobulin, 2213

- polymorphonuclear leukocyte, bovine, endotoxin mastitis, adhesion molecule, 2334
- polyunsaturated fatty acids, biohydrogenation, conjugated linoleic acid, *in vitro*, 4054
- population genetics, dairy food safety, *Listeria monocytogenes*, ecology, 1865
- portal-drained viscera, liver, transition, 1201
- postpartum, anestrous, treatment, cattle, 1876
- potassium, hypocalcemia, dietary cation-anion difference, pasture, 979
- potentially rumen degradable protein, heifer metabolism, protein-to-energy ratio, soluble protein, 2122
- practice adoption, team problem solving, extension method, 1849
- prediction, dairy cow, energy feeding system, energy requirement, 1415
- prediction bias, model evaluation, National Research Council, accuracy, 344
- prediction equation, Holstein, feed intake, intake model, 309
- prefresh transition period, dry matter intake, model, 1771
- pregnancy, apoptosis, multiphasic lactation curve model, extended lactation, 988
  - pasture, reproduction, milk production, 777
- preimplantation embryo, bovine, urea, pH, 1194
- prepubertal, extracellular matrix, mammary, 2864
- presalting, Ragusano cheese, brine, 1083
- pressure, carbon dioxide concentration, pH in heat exchanger, temperature, 3822
- presynchronization, Ovsynch, prostaglandin F<sub>2α</sub>, reproduction, 3215
- prevalence, foodborne pathogen, goat's and ewe's milk, microbiological quality, 3849
- primiparous cow, dietary fat, heat stress, 1306
- principal component analysis, odd-chain fatty acid, conjugated linoleic acid,  $\Delta 9$ -desaturase, 4047
- probiotic, cholesterol, Feta cheese, yeast, 3416
- probiotic bacteria, oxygen, metabolic and biochemical response, 2537
- probiotics, conjugated linoleic acid, gas liquid chromatography, *Lactobacillus* spp., 1941
- processed milk, capillary electrophoresis, whey protein-to-total protein ratio, proteolysis, 2813
- production, direct-fed microbial, 331
  - dry cow, early lactation, intake, 2397
  - rumen fermentation, fermentable carbohydrate, forage particle size, 1382
- production by dairy cattle, genetically enhanced cropsglyphosate-tolerant corn, 1734
- production system, international evaluation, genotype  $\times$  environment interaction, 1009
- production trait, genetic parameter, dairy sheep, somatic cell count, 1476
- productive life, udder type trait, intramammary infection, somatic cell score, 2684
- progeny test, selection intensity, sire sampling, artificial insemination, 1513
- progeny testing, selection intensity, genetic evaluation, 3386
- propionate infusion, ammonium, urea synthesis, feeding behavior, 1398
- propionate infusion, feeding behavior, stage of lactation, glucose demand, 2922
- propionibacteria, *Lactobacillus acidophilus*, *Lactobacillus casei*, *Lactobacillus rhamnosus*, 2288
- propionic acid, glucose, dairy cow, milk composition, 243
- propylene glycol, fat, periparturient cow, 2113
- prostaglandin F<sub>2α</sub>, reproduction, presynchronization, Ovsynch, 3215
- protease, cheese ripening, *Lactococcus* spp., peptidase, 1139
  - enzyme, milk, high-intensity pulsed electric field, 697
- protein, purine, dairy cow, degradation, 1292
- protein A, *in vivo* transfection, vulva mucosa, jet-injection, 1177
- protein and peptide fractions, calf nutrition, protein digestion, 934
- protein density, energy density, neutral detergent fiber, nonfiber carbohydrate, 1370
- protein digestibility, rumen undegradable protein, methionine, 958
- protein digestion, protein and peptide fractions, calf nutrition, 934
- protein energy ratio, feed efficiency, heifer growth, 268
- protein kinase, phosphorylation, milk, casein, 1147
- protein matrix, calcium, high-pressure injection, phosphate, 3113
  - syneresis, calcium, high-pressure injection, 2751
  - Mozzarella, high-pressure injection, 105
- protein supplementation, *in vivo* degradation rate, dairy cow, 835
- protein utilization, insulin-like growth factor-I, bovine somatotropin, insulin, 275
  - magnesium bioavailability, goat milk, resected rat, 2958
- protein yield, selection experiment, selection response, clinical mastitis, 2990
- protein-ion interactions, bovine  $\kappa$ -casein, human  $\beta$ -casein, reconstituted milk micelle, 2269
- protein-to-energy ratio, heifer metabolism, N balance, 2170
  - soluble protein, potentially rumen degradable protein, heifer metabolism, 2122
- proteolysis, lipolysis, carbon dioxide, raw milk storage, 1616

- pasteurized fluid milk quality, somatic cell count, 2491  
 sensory threshold, milk off-flavor, 1601  
 peptide profiling, Reggiano Argentino cheese, cheese ripening, 3831  
 processed milk, capillary electrophoresis, whey protein-to-total protein ratio, 2813  
 reduced-fat Cheddar, milk protein concentrate powder, 1608  
 smoking, Cheddar cheese, 1910  
 volatile compound, nisin microparticle, Hispánico cheese, 3038  
 psychrotroph, *Serratia marcescens*, lipolytic activity, lipase enzyme, 127  
 puberty, development, leptin, nutrition, 3206  
 pulsation rate, somatic cell count, teat thickness, intramammary infection, 530  
 purge-trap, Parmigiano Reggiano cheese, aroma, odor activity, 770  
 purification, *Lactobacillus casei*, arylesterase, nucleotide sequencing, 2547  
     esterase, nucleotide sequencing, 1118  
 purine, dairy cow, degradation, protein, 1292  
 purine derivation, microbial synthesis, urinary and milk excretion, dairy cow, 1282  
 push-up, feeding behavior, dairy cow, feeding pattern, 4079  
 pyridylamination, bovine, colostrum, sialyloligosaccharide, 1315
- Q**
- quantitative trait loci, bovine chromosome 14, marker-assisted selection, cattle microsatellite, 2219  
     dairy cattle breeding, marker-assisted selection, 667  
     functional trait, Holstein cattle, 360  
 quantitative trait loci mapping, multivariate analysis, milk yield trait, 999  
 quantitative trait, cofactor, dairy cattle, interval mapping, 1828
- R**
- Ragusano cheese, brine, presalting, 1083  
     brine temperature, salt uptake, 2799  
 random regression model, environmental sensitivity, environmental parameter, genotype  $\times$  environmental interaction, 3756  
     genetic component, body condition score, multivariate model, 4123  
     somatic cell score, dairy cattle, model comparison, 4103  
 random regression test-day model, heterogeneity of residual variance, Bayesian analysis, 3374  
 random regression, body weight, body condition score, fertility, 3704  
     genotype  $\times$  environment interaction, herd, test day, 3736  
 raw milk storage, proteolysis, lipolysis, carbon dioxide, 1616  
 receptor, parturition, growth hormone, 3933  
 recombinant bovine tumor necrosis factor- $\alpha$ , metabolite, hormone, mastitis, 819  
 reconstituted milk micelle, protein-ion interactions, bovine  $\kappa$ -casein, human  $\beta$ -casein, 2269  
 reduced-fat Cheddar, milk protein concentrate powder, proteolysis, 1608  
 reducing activity, sulfhydryl group, hydroxyl radical scavenging, antioxidant activity, 1541  
 reformulated cream, physical property, fractionated milk fat, milk-derived component, 3395  
 Reggiano Argentino cheese, cheese ripening, proteolysis, peptide profiling, 3831  
 regression coefficient, persistency, lactation curve, index selection, 1487  
 regulation, air quality, animal science curricula, environment, 1045  
 relocation, survey, farm location, 3473  
 rennet, aggregation, casein, fractal, 2504  
 renneting, heated milk, enzymatic hydrolysis, gelation kinetics, 1548  
 reproduction, body condition score, logistic regression, negative energy balance, 2308  
     dairy cow, cottonseed, gossypol, 892  
     energy balance, metabolism, lactation, 2852  
     leptin concentration, lactation, energy balance, 799  
     milk production, pregnancy, pasture, 777  
     presynchronization, Ovsynch, prostaglandin  $F_{2\alpha}$ , 3215  
 research and development, economics, new uses, returns to research, 1662  
 resected rat, protein utilization, magnesium bioavailability, goat milk, 2958  
 restriction enzyme, Ovar-DRB1 exon 2, PCR-RFLP, genetic polymorphism, 3362  
 restriction fragment length polymorphism, exopolysaccharide, *Lactococcus lactis*, 1472  
 resynchronization, dairy cow, timed artificial insemination, synchronization, 3941  
 resynchronization of estrus, dairy cow, intravaginal progesterone intravaginal insert, 2039  
 returns to research, research and development, economics, new uses, 1662  
 reverse micelle, immunoglobulin G, colostrum, 1639  
 rheological property, serum-holding capacity,  $\kappa$ -casein hydrolysis, acid milk gel, 704  
 rheology, confocal laser scanning microscopy, yogurt, exopolysaccharide, 1632

- free oil, cheese, fat globule, 755  
 milk coagulation, gelation pH, plant coagulation, 2558  
 sensory, cheese, texture, 3054  
 riboflavin, yogurt, fluorescence spectroscopy, chemometrics, 2508  
 riparian buffer, manure, forage, water quality, 2243  
 ripening, nisin Z, liposome, secondary microflora, 1895  
   volatile free fatty acid, ewe cheese, 3102  
 risk, *Cryptosporidium* spp., *Giardia* spp., soil, 784  
 roasted soybean, *trans*-fatty acids, vitamin E tallow, 3582  
 robotic milking, farm simulation, economics, DAFO-SYM, 4167  
 round bales, storage method, length of fermentation, tropical silage, 926  
 Roundup Ready, YieldGard corn, herbicide tolerant, genetically modified, 1780  
 rumen, eating behavior, pH, rumination, 3343  
   effective fiber, pH, rumination, 1445  
 rumen ammonia, milk protein, dairy cow, carbohydrate, 2416  
 rumen bacteria, fatty acid, forage, goat, 2940  
 rumen biohydrogenation, digesta kinetics, fatty acid, legume, 2612  
 rumen digesta, plasma triglyceride, conjugated linoleic acid, vaccenic acid, 3648  
 rumen fermentation, fermentable carbohydrate, forage particle size, production, 1382  
   milk fat depression, dairy cow, volatile fatty acid, 3620  
   nutrient digestion, soyhulls, nutrient passage to the duodenum, 1052  
   *Yucca schidigera*, saponin, methane, 3330  
 rumen function, bovine milk fatty acid profile, nitrogen supplementation, 4020  
 rumen pH, dairy cow, physically effective neutral detergent fiber, chewing behavior, 630  
   neutral detergent fiber, particle size, dairy cow, 3611  
 rumen synchrony, corn silage, dairy cow, nitrogen supplementation, 4008  
 rumen undegradable protein, methionine, protein digestibility, 958  
   urea, nitrogen excretion, 1681  
 ruminic acid, biohydrogenation, milk fat, unsaturated oil, 1354  
 ruminal acidosis, milk fatty acids, dairy cow, monensin, 4043  
 ruminal cellulolytic bacteria, competitive PCR, fiber attachment, 1429  
 ruminal digestion, dairy cow, forage-to-concentrate ratio, linseed oil, 3999  
 ruminal fermentation, bacterial protein synthesis, cottonseed, starch, 3661  
 ruminal fill, beet pulp, high-moisture corn, milk yield, 3542  
 ruminal microorganism, monensin, soybean oil, *trans* fatty acid, 324  
 ruminal pH, enzyme, chewing behavior, feeding behavior, 565  
 ruminant, milk yield and composition, dairy cow, wet corn gluten feed, 844  
 rumination, cottonseed hull, forage particle length, 2438  
 rumen, eating behavior, pH, 3343  
   effective fiber, pH, 1445
- S**
- salt uptake, Ragusano cheese, brine temperature, 2799  
 saponin, methane, rumen fermentation, *Yucca schidigera*, 3330  
 SDS-PAGE analysis, Western-blotting detection, angiotensin-converting enzyme, antihypertensive peptide, 1927  
 seasonality, month of calving, days open, heat stress, 3718  
 secondary microflora, ripening, nisin Z, liposome, 1895  
 secretion, tight junction, involution, mammary gland, 1250  
 selection, alfalfa hay, sorting, 557  
   antibody, milk production, peripartum, 169  
   dairy bull, energy balance, genetics, 2205  
   somatic cell score, clinical mastitis, dairy cattle, 4129  
 selection experiment, selection response, clinical mastitis, protein yield, 2990  
 selection index, body weight, body condition score, fertility, 2193  
 selection intensity, genetic evaluation, progeny testing, 3386  
   sire sampling, artificial insemination, progeny test, 1513  
 selection response, clinical mastitis, protein yield, selection experiment, 2990  
 selenium, fertility, embryo, vitamin E, 2343  
 self-diffusion coefficient, magnetic resonance imaging, Mozzarella cheese, T2 relaxation, 2525  
 sensitivity, specificity, *Streptococcus agalactiae*, surveillance program, 1233  
 sensory threshold, milk off-flavor, proteolysis, lipolysis, 1601  
 sensory, cheese, texture, rheology, 3054  
 sensory, conjugated linoleic acid, milk, lipid oxidation, 43  
*Serratia marcescens*, lipolytic activity, lipase enzyme, psychrotroph, 127  
 serum casein, transglutaminase, casein micelle, gelation kinetics, 1556

- serum protein, carbon dioxide, casein, freezing point, 1590
- serum-holding capacity,  $\kappa$ -casein hydrolysis, acid milk gel, rheological property, 704
- sesame oil emulsion, biocapsule, encapsulation, lactic acid bacteria, 424
- sheep, ketosis, Ca<sup>2+</sup>, glucose, 1953
- Shewhart, cumulative sum, estrous detection, statistical process control, 1970
- short-path distillation, crystallization, fractionation, milk fat, 735
- sialyloligosaccharide, pyridylamination, bovine, colostrum, 1315
- sieve, moisture, particle size, 1858
- sIgA, opsonization, neutrophil, *Staphylococcus aureus*, 2884
- silage, aerobic stability, *Lactobacillus buchneri*, 336  
*Lactobacillus plantarum*, 3575  
 clover, alfalfa, milk production, 2598
- silage maturity, corn silage, height of cutting, 2163
- single-strand conformation polymorphism, goat,  $\kappa$ -casein, genetic polymorphism, 3726
- sire evaluation, genetics, grazing, 383
- sire sampling, artificial insemination, progeny test, selection intensity, 1513
- site of digestion, starch digestion, beet pulp, high-moisture corn, 3553
- size-exclusion chromatography, multi-angle laser light scattering, molar mass, whey protein, 3090
- smoking, Cheddar cheese, proteolysis, 1910
- sodium bicarbonate, feed intake, dairy cow, subacute ruminal acidosis, 954
- soil, risk, *Cryptosporidium* spp., *Giardia* spp., 784
- solin, milk fat, very low density lipoprotein, linoleic acid, 1742
- soluble CD-14, endotoxin, mastitis, lipopolysaccharide-binding protein, 3128
- soluble protein, potentially rumen degradable protein, heifer metabolism, protein-to-energy ratio, 2122
- somatic cell count, dairy goat, once daily milking, milk production, 1673  
 fatty acids, hard ewe's milk cheese, ovine, 3082
- Fossomatic method, direct microscopic method, ewe milk, 138  
 frozen milk, ewe milk, 2583
- production trait, genetic parameter, dairy sheep, 1476
- proteolysis, lipolysis, pasteurized fluid milk quality, 2491
- teat thickness, intramammary infection, pulsation rate, 530  
 vacuum level, overmilking, 3891  
 udder hygiene, mastitis, milk quality, 3460
- somatic cell score, clinical mastitis, dairy cattle, selection, 4129  
 dairy cattle, model comparison, random regression model, 4103  
 productive life, udder type trait, intramammary infection, 2684  
 udder health, Bayesian methods, mixture model, 3694
- sorting, selection, alfalfa hay, 557
- soy protein isolate, egg powder, buttermilk solids, non-fat dried milk, 746
- soybean oil, *trans* fatty acid, ruminal microorganism, monensin, 324
- soyhulls, nutrient passage to the duodenum, rumen fermentation, nutrient digestion, 1052
- specificity, *Streptococcus agalactiae*, surveillance program, sensitivity, 1233
- staff use, cow preference, stocking density, free-stall base, 2253
- stage of lactation, feeding behavior, dairy cow, 3354  
 glucose demand, propionate infusion, feeding behavior, 2922
- Staphylococcus aureus*, *Streptococcus agalactiae*, teat dip, iodine, 3783  
 dry cow therapy, tilmicosin, 159  
 mastitis, antimicrobial drug susceptibility, 3157  
 lactose transporter, 2373  
 sIgA, opsonization, neutrophil, 2884
- starch, ruminal fermentation, bacterial protein synthesis, cottonseed, 3661
- starch digestibility, digestion kinetics conservation method of corn, 184  
 phosphorus excretion, phytase activity, 3972
- starch digestion, beet pulp, high-moisture corn, site of digestion, 3553
- starter culture, oxidative stability, whey flavor, 439
- starter, colostrum, calf, 2145
- statistical process control, economics, dairy, detection of estrus, 3516  
 Shewhart, cumulative sum, estrous detection, 1970
- steam-flaked corn, nonforage fiber source, milk, grazing dairy cow, 906
- steroid, milk production, mastitis, 792
- stillbirth and calving difficulty, direct and maternal genetic effects, threshold model, 2228
- stocking density, free-stall base, staff use, cow preference, 2253
- storage, Mozzarella cheese, functionality, texture, 2790
- storage method, length of fermentation, tropical silage, round bales, 926
- Streptococcus agalactiae*, surveillance program, sensitivity, specificity, 1233  
 teat dip, iodine, *Staphylococcus aureus*, 3783

- Streptococcus thermophilus* 1275, whey protein concentrate, adjunct culture, exopolysaccharide, 3405  
*Streptococcus thermophilus*, *Clostridium trybutyricum* inhibition, bacteriocin, coculture, 3068  
 exopolysaccharide, lactic acid bacteria, 407  
 stretchability, frozen storage, meltability, Mozzarella cheese, 1108  
 stretching, free oil, cheese curd, cooking, 449  
 structural model, covariance component, genotype  $\times$  environment interaction, Bayesian methods, 1837  
 subacute ruminal acidosis, sodium bicarbonate, feed intake, dairy cow, 954  
 substitution rate, nutrient digestion, N metabolism, pasture, 1330, 1341  
 sucrose, grass, nonfiber carbohydrate, 3983  
 sulfhydryl group, hydroxyl radical scavenging, antioxidant activity, reducing activity, 1541  
 sunflower, fatty acids, flaxseed, milk production, 2637  
 supercritical fluid extraction, buttermilk, milk fat globule membrane, microfiltration, 2297  
 supplementation, milk production and composition, high producing dairy cow, pasture, 1  
 surveillance program, sensitivity, specificity, *Streptococcus agalactiae*, 1233  
 survey, crossbreeding, dairy cattle, 4148  
 farm location, relocation, 3473  
 survival, Jersey, type trait, inbreeding, 2984  
 survival analysis, Holstein, herd expansion, culling, 1482  
 type trait, functional herd life, Holstein, 4083  
 white line disease, lameness, biotin supplementation, 2577  
 susceptibility, antimicrobials, *Escherichia coli*, mastitis, 3927  
 sweet whey powder, physicochemical, functional property, 3866  
 synchronization, resynchronization, dairy cow, timed artificial insemination, 3941  
 syneresis, calcium, high-pressure injection, ionic strength, 60  
 protein matrix, 2751  
 Mozzarella, high-pressure injection, protein matrix, 105  
 yield stress, yogurt, high hydrostatic pressure, 1074
- T**
- T2 relaxation, self-diffusion coefficient, magnetic resonance imaging, Mozzarella cheese, 2525  
 tallow, corn silage, milk fat, particle size, 2949  
 digestibility, corn silage, alfalfa silage, 593  
 tariff rate quota, harmonized tariff schedule, milk protein concentrate, 4155  
 team problem solving, extension method, practice adoption, 1849  
 teat dip, iodine, *Staphylococcus aureus*, *Streptococcus agalactiae*, 3783  
 teat end condition, teat skin condition, automated milking, 1646  
 teat skin, pH, 3951  
 teat thickness, intramammary infection, pulsation rate, somatic cell count, 530  
 vacuum level, overmilking, somatic cell count, 3891  
 temperature, pressure, carbon dioxide concentration, pH in heat exchanger, 3822  
 test day, abnormal yield, outlier detection, yield adjustment, 2721  
 random regression, genotype  $\times$  environment interaction, herd, 3736  
 test-day model, genetic evaluation, yield trait, lactation curve, 3765  
 genetic parameter, lactation curve, 2480  
 test-day yield, threshold model, Bayesian analysis, bivariate longitudinal response, 3000  
 texture, rheology, sensory, cheese, 3054  
 storage, Mozzarella cheese, functionality, 2790  
 texturization, whey protein, functionality, extrusion, 3775  
 thermal comfort, body surface, energy requirement, heat stress, 3605  
 thermal damage, cross-linked amino acids, enteral nutrition, lysinoalanine, 2283  
 three times-daily milking, milk yield, dairy cow, amino acid, 3309  
 growth hormone, dairy cow, amino acid partition, 2409  
 threshold model, Bayesian analysis, bivariate longitudinal response, test-day yield, 3000  
 calving ease, dystocia, 1845  
 clinical mastitis, (co)variance component, 653  
 genetic change, 369  
 genetic evaluation, calving ease, dystocia, 3366  
 stillbirth and calving difficulty, direct and maternal genetic effects, 2228  
 thyroid hormone, dairy cow, mammary gland, liver, 152  
 tight junction, involution, mammary gland, secretion, 1250  
 tilmicosin, *Staphylococcus aureus*, dry cow therapy, 159  
 time intensity study, melting, flavor release, ice cream, 1130  
 timed artificial insemination, synchronization, resynchronization, dairy cow, 3941  
 training, physical fitness, acid-base status, exercise, 2839  
*trans* fatty acid, ruminal microorganism, monensin, soybean oil, 324

*trans*-fatty acids, vitamin E tallow, roasted soybean, 3582  
transcription factor binding site, camel, gene expression, milk protein, 498  
transglutaminase, casein micelle, gelation kinetics, serum casein, 1556  
transition, energy density, lactation performance, dairy cattle, 916  
  methionine analog, body fat, body protein, 3634  
  portal-drained viscera, liver, 1201  
transition cow, conjugated linoleic acid, milk fat, lactation, 3218  
transition dairy cow, controlled-release capsule, metabolic parameter, monensin, 1171  
transition period, dairy cow, bovine somatotropin, milk yield, 3195  
transvaccenic acid, milk fatty acids, conjugated linoleic acid, 944  
treatment, cattle, postpartum, anestrus, 1876  
tropical silage, round bales, storage method, length of fermentation, 926  
tumor necrosis factor alpha, mammary gland, immunology, eicosanoid, 538  
type trait, functional herd life, Holstein, survival analysis, 4083  
  inbreeding, survival, Jersey, 2984

## U

udder casting, milk yield, 1985  
udder health, automatic milking system, dairy cow, milk leakage, 3488  
  Bayesian methods, mixture model, somatic cell score, 3694  
  ultrasonography, milking frequency, cisternal size, 2352  
udder hygiene, mastitis, milk quality, somatic cell count, 3460  
udder type trait, intramammary infection, somatic cell score, productive life, 2684  
ultrafiltration, calcium retention, lactose reduction, pilot-scale process, 2761  
ultrasonography, milking frequency, cisternal size, udder health, 2352  
undergraduate, dairy herd management, industry, university, 1029  
unsaturated oil, ruminic acid, biohydrogenation, milk fat, 1354  
Upland cottonseed, gossypol, milk yield, Pima cottonseed, 254  
urea synthesis, feeding behavior, propionate infusion, ammonium, 1398  
urea, nitrogen excretion, rumen undegradable protein, 1681

pH, preimplantation embryo, bovine, 1194  
urinary and milk excretion, dairy cow, purine derivation, microbial synthesis, 1282  
urine, crude protein, methionine, nitrogen, 4033

## V

vaccenic acid, rumen digesta, plasma triglyceride, conjugated linoleic acid, 3648  
vacuum level, overmilking, somatic cell count, teat thickness, 3891  
validation, feeding behavior, dairy cow, 3571  
variance analysis, casein promoter, linkage mapping, candidate gene, 2696  
variance component, genetic change, female fertility, nonreturn rate, 2706  
variation, multilevel modeling, milk urea nitrogen, 1653  
very low density lipoprotein, linoleic acid, solin, milk fat, 1742  
vitamin B12, cobalt, cow, calf, 1405  
vitamin D, lipopolysaccharide, mineral, 3440  
vitamin E, selenium, fertility, embryo, 2343  
vitamin E tallow, roasted soybean, *trans*-fatty acids, 3582  
volatile compound, nisin microparticle, Hispanic cheese, proteolysis, 3038  
volatile fatty acid, rumen fermentation, milk fat depression, dairy cow, 3620  
volatile free fatty acid, ewe cheese, ripening, 3102  
vulva mucosa, jet-injection, protein A, in vivo transfection, 1177

## W

waste milk, health, calf management, feeding, 3963  
water quality, riparian buffer, manure, forage, 2243  
water-buffalo Mozzarella cheese, flavoring capacity, microbial diversity, natural whey culture, 486  
weaning, calf, health, lactoferrin, 1458  
weighted bending, genetic correlation matrix, covariance matrix, 677  
well-being, behavior, cubicle, comfort, 521  
western United States, nitrogen balance, commercial dairy, 4178  
  phosphorus balance, commercial dairy, 688  
Western-blotting detection, angiotensin-converting enzyme, antihypertensive peptide, SDS-PAGE analysis, 1927  
wet corn gluten feed, ruminant, milk yield and composition, dairy cow, 844  
whey flavor, starter culture, oxidative stability, 439  
whey protein, functionality, extrusion, texturization, 3775

- size-exclusion chromatography, multi-angle laser light scattering, molar mass, 3090
  - whey protein concentrate, adjunct culture, exopolysaccharide, *Streptococcus thermophilus* 1275, 3405
  - whey protein-to-total protein ratio, proteolysis, processed milk, capillary electrophoresis, 2813
  - whipping cream, cholesterol removal,  $\beta$ -cyclodextrin, functional property, 2767
  - white line disease, lameness, biotin supplementation, survival analysis, 2577
- Y**
- yeast, probiotic, cholesterol, Feta cheese, 3416
  - yield adjustment, test day, abnormal yield, outlier detection, 2721
  - yield stress, casein micelle aggregation, mineral environment, concentrated milk, 3813
  - yield stress, yogurt, high hydrostatic pressure, syneresis, 1074
  - yield trait, lactation curve, test-day model, genetic evaluation, 3765
  - YieldGard corn, herbicide tolerant, genetically modified, Roundup Ready, 1780
  - yogurt, exopolysaccharide, rheology, confocal laser scanning microscopy, 1632
    - fluorescence spectroscopy, chemometrics, riboflavin, 2508
    - high hydrostatic pressure, syneresis, yield stress, 1074
  - Yucca schidigera*, saponin, methane, rumen fermentation, 3330