Feed Into Milk A New Applied Feeding System For Dairy Cows

This widely used reference has been updated and revamped to reflect the changing face of the dairy industry. New features allow users to pinpoint nutrient requirements more accurately for individual animals. The committee also provides guidance on how nutrient analysis of feed ingredients, insights into nutrient utilization by the animal, and formulation of diets to reduce environmental impacts can be applied to productive management decisions. The book includes a user-friendly computer program on a compact disk, accompanied by extensive context-sensitive "Help" options, to simulate the dynamic state of animals. The committee addresses important issues unique to dairy science-the dry or transition cow, udder edema, milk fever, low-fat milk, calf dehydration, and more. The also volume covers dry matter intake, including how to predict feed intake. It addresses the management of lactating dairy cows, utilization of fat in calf and lactation diets, and calf and heifer replacement nutrition. In addition, the many useful tables include updated nutrient composition for commonly used feedstuffs.

The Model Chapter on Infant and Young Child Feeding is intended for use in basic training of health professionals. It describes essential knowledge and basic skills that every health professional who works with mothers and young children should master. The Model Chapter can be used by teachers and students as a complement to textbooks or as a concise reference manual.

The United States approach to regulation development; Animal feed legislation - including the influence of EU food safety concerns; Manipulating the fatty acid composition of animal products; What has what might be achieved?; Feed composition and environmental pollution; Formulating diets to meet legislative constraints in the Netherlands; Exogenous enzymes as pro-nutrients in broiler diets; Microbial phytase in broiler nutrition; Nutrition of the dairy heifer calf; Dairy feeding standards in the USA: NRC, 2001; Feed into milk - an applied feeding model coupled with a new system of feed characterisation; Gut health and immunity in young piglets; Post weaning multisystemic wasting syndrome (PMWS) in pigs; putting poultry nutrition into practice: experience from the field; Equine nutrition: some unique features, functions and frailties of the digestive system of the horse; Companion animal nutrition.

Designing Foods

Dairying

New Approaches to Assess and Improve Protein Efficiency in Lactating Dairy Cows

Understanding Rumen Function

Investigation in Milk Production ; Feeding Dairy Cows

The Influence of Calcium and Phosphorus in the Feed on the Milk Yield of Dairy Cows (Classic Reprint)

This lively book examines recent trends in animal product consumption and diet; reviews industry efforts, policies, and programs aimed at improving the nutritional attributes of animal products; and offers suggestions for further research. In addition, the volume reviews dietary and health recommendations from major health organizations and notes specific target levels for nutrients.

Today's dairy industry is complex and continuously improving. A producer's management of the operation is the most important item on the road to profitability. Since dairy farms are so complex, producers must master managing all of the areas of the business in order to achieve maximum profitability and productivity. Feed is the largest expense in producing milk. This makes proper management of feeding and nutrition pivotal to both profitability and productivity. Management of profit margins is necessary in order to make the best decisions for the dairy business. The effective use of different management tools, such as income over feed cost and dairy advisory teams, can lead to better profitability and productivity by helping dairy producers make the best management decisions. This thesis will discuss three studies that investigated 1) milk income and feed cost profit margins 2) current feed management on dairy farms, with an interest in by-product feed management 3) and the use of dairy advisory teams to improve overall farm success. With volatility in feed and milk markets, income over feed cost (IOFC) is a more advantageous measure of profit than simply feed cost per cow. The Pennsylvania State Extension Dairy Team IOFC tool was used to collect data from 95 Pennsylvania lactating dairy cow herds from 2009-2012 and to determine IOFC per cow per day. The data collected included average milk yield, milk income, purchased feed cost, ration ingredients, ingredient cost per ton, and amount of each ingredient fed. Feed costs for home-raised feeds for each ration were based on market values rather than on actual on-farm cost. Actual costs were used for purchased feed for each ration. Mean lactating herd size was 170 ±10.5 cows, and daily milk yield per cow was 31.7 kg ± 0.19kg. Mean IOFC was $7.71 ±$1.01 cost per cow ranging from -$0.33 in March, 2009 to $16.60 in September, 2011. Data was analyzed using a one-way ANOVA in SPSS. Values were grouped by quartiles and analyzed with all years combined as well as by individual year. Purchased feed cost per cow per day averaged $3.16 ± $1.07 for 2009-2012. For 2009-2012 combined, milk yield and IOFC did not differ with purchased feed cost. Intermediate levels (quartiles 2 and 3) of forage cost per cow per day between $1.45 and $1.97 per cow per day resulted in the greatest average IOFC of $8.19 and the greatest average milk yield of 32.3kg. Total feed costs in the fourth quartile ($6.27 or more per cow per day) resulted in the highest IOFC. Thus, minimizing feed cost per cow per day did not maximize IOFC. In 2010, the IOFC was highest at $8.09 for dairies that fed one or more commodity by-product feeds.Due to tight profit margins and volatility in feed costs, many producers incorporate by-product feeds into their rations. This study used an electronic survey to gather information about feeding management and the use of by-product feeds in rations for Pennsylvania dairy farms in 2013. The survey was sent to 200 dairy farms via email, and 41 surveys were completed. The survey was first sent out in November 2013 and the last response was received in April 2014. All data were collected for the month of September 2013. Survey responses showed that most (97.6%) of the responding Pennsylvania (PA) dairy producers fed a total mixed ration (TMR). Over half (58.5%) of the producers fed a 60:40 forage to concentrate ratio for the ration. Distillers grains and brewer's grains and yeasts were the most commonly used by-product feeds. Producers analyzed dry matter weekly or biweekly (60.9 %) or when switching feeds (34.1 %). Most TMR and forage nutrient testing was done when switching feeds, except for by-product commodity feeds, which most producers never nutrient tested. Most dairy producers used PC Dart as a management tool.Dairy producers continuously seek ways to improve their farm, and many choose to form a dairy advisory team (DAT) to improve management. The objectives were: (1) to compare key measures before and after the team in order to determine if the use of a DAT was effective and (2) to compare a group of 24 herds with a DAT to Pennsylvania (PA) averages for key measures. Teams were formed between May 2008 through January 2013. The range for herd size was 32-608 with a standard deviation of ± 13.96 cows. Herd size, milk yield, somatic cell score (SCS), peak milk yield, age at first calving (AFC), days in milk (DIM), pregnancy rate and cull and mortality rates were key measures analyzed. The changes in key measures, after using DAT for at least one year, were analyzed using a general liner model and contrasts. After DAT use for one year, herds had significantly (P

Sixty lactating Holstein cows were used in a replicated block experiment to determine the efficacy of eight feed additives to reduce the transfer of aflatoxin (AF) from feed to milk. Six cows were allocated to each treatment group and 12 to a control group. All cows were fed the same aflatoxin-contaminated total mixed ration (TMR) with either no additive (control) or one of eight additives at 0.5% of the TMR dry matter (DM). Milk samples were collected twice daily to evaluate changes in milk AF concentration, milk AF excretion (milk AF concentration x milk yield); and AF transfer from feed to milk (AF excretion as a percentage of AF intake). All changes were expressed as percentages and calculated relative to the control group which defined zero change. Four of the eight additives resulted in significant reductions (P 0.05) in milk AF concentration, secretion, and AF transfer ranging from 34.98-40.39%, 36.36-52.28%, and 34.45-48.44%, respectively. Dry matter intake (DMI) was significantly reduced (P

The Complete Guide for Home-Scale, Holistic Dairy Producers, 3rd Edition

Effects of Feed Restriction on Milk Production and Metabolism in Mid-lactation Dairy Cows

A New Applied Feeding System for Dairy Cows : an Advisory Manual

Feed Into Milk

Model Chapter for textbooks for medical students and allied health professionals

Using Science to Meet Consumers' Needs

The modern dairy cow is amazingly efficient, as most of the cows energy is put into milk synthesis versus muscle deposition. It is quite obvious that within the past 50 years, the United States has made tremendous gains in managing cows for increased productivity, and as a result increased feed efficiency. However, despite remarkable advances in productivity, rising feed costs remain a threat to American farmers profitability, hence why feed efficiency is becoming a highlighted area of interest for dairy cattle. Although greater production of milk per cow has allowed for a reduction in feed costs, feed efficiency advances must continue to meet the demands of an ever-growing population. Advances in feed efficiency could lead to increased profitability and environmental stability. This thesis aims to enhance the understanding of feed efficiency by identifying factors that affect feed digestibility in Holstein cattle. The objectives of this thesis are to determine: how time of day effects estimates of feed digestibility; whether grinding size of fecal samples effects results; if results are repeatable within the same cow; and how feed digestibility is related to stage of lactation, milk yield, body weight, and genetic merit for feed utilization and other traits. Fecal samples were collected from 115 Holstein cows to determine total tract digestibility of DM and NDF. Feed digestibility measures were correlated with phenotypic covariables of interest and estimates of genetic merit. The significant factors associated with lower feed digestibility were milk yield and protein yield; MUN, fat percent and higher DIM were associated with greater feed digestibility. Likewise, higher genetic merit for yield was associated with reduced feed digestibility, whereas higher genetic merit for fat percentage was associated with greater feed digestibility. The most significant result of this study is that selection for higher yield has likely compromised total tract digestibility of NDF to some extent.

"In developing countries feed shortages notwithstanding, considerable potential exists to increase production levels across a range of growing, lactating and beef animals by addressing the problem of imbalanced nutrition. The data on improving milk production efficiency in dairy animals through balanced feeding suggests that there is considerable scope for enhancing milk production with strategic use of the existing feed resources. This is possible through the transfer of scientific knowledge, in an easy-to-use and easy-to-implement manner to milk producers. The aim should be to promote feeding of a balanced ration in sufficient quantities and containing all essential nutrients. This paper outlines an approach used by National Dairy Development Board, India to balance rations at the doorsteps of smallholder farmers. This initiative has relevance for many other developing countries."--Publisher's description.

Increased pressure for land use and greater demand for cereal grains have substantially increased feed costs for dairy producers. This has forced nutritionists to devise novel diet formulation strategies to help keep feed costs in check. As a result, dairymen are incorporating wet corn gluten feed (WCGF) into diets. Numerous studies have reported production responses to dietary inclusion of WCGF, but few have reported ruminal effects. Therefore an experiment was conducted to monitor production, while simultaneously measuring ruminal fermentation and total-tract digestion in 8 Holstein cows fed 0, 12, 24, and 36% WCGF (DM basis). Results from this study were consistent with recently published papers indicating that increasing dietary levels of WCGF linearly increases milk and milk component production. However, results demonstrate that this increase in production is related to an increase in feed intake, not improved digestibility. In addition to escalating grain prices, recent pressure for land and water use has led to a decrease in the availability of alfalfa. A second experiment was conducted to determine if forage fiber provided by alfalfa hay is necessary to maintain production in diets containing 31% WCGF (DM basis). Eighty primiparous and multiparous Holstein cows were utilized in two 4 x 4 Latin squares to evaluate the effects of feeding alfalfa at 0, 7, 14, and 21% of diet DM. Feeding higher proportions of alfalfa tended to increase ECM yield and decrease BW gain, suggesting that metabolizable energy supply was repartitioned from BW gain to milk production as more alfalfa was included. However, partial budget analysis determined that decreasing alfalfa inclusion rate may improve farm profitability by reducing feed costs and expenses associated with manure handling, despite small losses in productivity. Overall, these research projects suggest that large proportions of WCGF can effectively be fed to dairy cattle without sacrificing milk production, even without the use of alfalfa hay. Therefore, WCGF can be a cost-effective alternative to traditional dietary ingredients.

Sustainability, Challenges and Innovations

Feeding High Levels of Wet Corn Gluten Feed to Dairy Cattle

Evaluation of Feed Energy in Relation to Milk Production of DHIA-tested Dairy Cows in Louisiana

Influence of NDF on Milk Production, Feed Intake, Digestibility, and Rate of Passage in Early Lactation Cows

Animal Product Options in the Marketplace

From Feed to Milk

Dairying once again finds itself at a crossroads. Increasingly, producers and scientists need to harness their knowledge and expertise to meet consumers' demands for quality milk and milk products. This volume discusses how the industry can meet the needs of today's consumer. Scientists, producers, processors and marketeers together with those interested in the wider issues of biotechnology and the environment, present their views on six key areas of debate: cows for lifetime production; management for lifetime production; feeds and feeding; opportunities and impact; identifying the right model for accurate prediction of production; marketing – the myth against milk. The book concludes with a chapter looking at customers and consumers health.

The long-term goal of the work is to improve protein efficiency in lactating dairy cows. To achieve this goal, four specific objectives were proposed: 1) determine the relationship of residual feed intake (RFI) to protein efficiency in lactating Holstein cows fed high or low protein diets, 2) determine whether low protein resilience (LPR) is an indicator of protein efficiency in individual dairy cows, 3) examine the association of digestibility with RFI and LPR in lactating dairy cows, and 4) quantify the importance of including body weight (BW) change in the cow response to decreased dietary protein content and develop models for predicting BW change when dietary protein is altered. Lactating Holstein cows (n= 166; 92 primiparous, 77 multiparous) with initial milk yield (MY) of 41 ± 9.8 kg/d were fed high (HP) and low (LP) protein diets in crossover experiments of two 28-35 d periods. Experiments were repeated in 69 of the 166 cows (42 primiparous, 27 multiparous) in late lactation. Low protein diets were 14% CP in peak lactation and 13% CP in late lactation and were formulated to contain adequate rumen-degraded protein to maintain rumen function. Expeller soybean meal was added to formulate the HP diet, which contained 18% CP in peak lactation and 16% CP in late lactation. Cows were milked twice daily; DMI and MY were recorded once daily. Milk composition was measured over 4 consecutive milkings weekly, and BW was measured 3 times weekly. Samples of feed ingredients, orts and feces were collected in the last 5 days of each period and analyzed to determine digestibilities of DM, NDF, and CP for each cow on each diet. Fixed effects of diet, parity, treatment sequence nested in experiment, treatment period nested in experiment, interaction of parity and diet, and random effects of experiment and cow nested within experiment were included in models to compare production of cows fed different levels of CP. Protein efficiency was calculated for each cow on each diet in both peak lactation and late lactation. Residual feed intake was estimated for each cow on each treatment based on the actual intake, milk energy output, metabolic BW, and body energy change (estimated from BW change and BCS). Low protein resilience was estimated for each cow in peak lactation and also late lactation, based on protein captured in milk and body tissue when fed the LP vs HP diet. A negative correlation was observed between RFI and protein efficiency in cows fed the HP and LP diets in peak lactation and cows fed the HP diet in late lactation. Cows with higher LPR values had similar protein efficiency on the HP diet but significantly higher protein efficiency on the LP diet. Neither RFI nor LPR was correlated with digestibility regardless of diets or lactation stages. When dietary protein content was reduced, 40-50 % of the total energy loss, 10-20 % of total protein loss, and 15-25% of total income loss were due to BW loss, indicating that considering only changes in milk production underestimates the impact of dietary protein changes. In conclusion, 1) cows with lower RFI values utilized protein more efficiently, and protein efficiency will be improved in the process of selecting dairy cattle for low RFI, 2) cows with higher LPR values are better able to maintain production and have higher protein efficiency to adapt to low-protein feeding conditions, 3) variation in digestibility cannot explain the variations of RFI and LPR among lactating dairy cows, and we suggest that post-absorptive metabolism explains most of the variation in RFI and LPR when lactating cows are fed diets with minimal NDF in peak lactation and 40% NDF in late lactation, and 4) body reserve mobilization should not be neglected when assessing the cow response to changes in dietary protein.

Dry matter intake (DMI) is one of the most important factors affecting lactational performance and health of dairy cows. Control of DMI in dairy cattle is complicated and multifactorial, but we have chosen to prioritize the two main components that primarily drive farm profitability: forage quality and cow comfort. Brown midrib-3 (BM3) genetics in corn silage typically result in greater fiber digestibility and less indigestible fiber, which result in greater DMI and milk production compared to conventional, non-BM (CON) corn silage. Trace minerals may negatively affect fiber digestion by solubilizing in the rumen. Importantly, hydroxy trace minerals (HTM) are less soluble in the rumen compared to sulfate sources (STM). Still, to-date, no models have inputs that reflect social environment factors such as stocking density and feeding frequency. The objectives of this dissertation were to: 1) evaluate the effect of source of corn silage and trace mineral on lactational performance, total tract digestibility (TTD) of nutrients, and rumen fermentation, and 2) create a model that accurately quantifies the effect of management decisions on DMI. The study addressing the first objective (Chapters 2 and 3) investigated the effects of source of corn silage (CON or BM3) and trace minerals (STM or HTM) on lactational performance, TTD of nutrients, and particle passage rates. Sixteen Holstein cows averaging 82 (SE = 3) days in milk were used in a replicated 4 x 4 Latin square design with a 2 x 2 factorial arrangement of treatments. The dietary treatments were: 1) CON-STM, 2) CON-HTM, 3) BM3-STM, and 4) BM3-HTM. There was no significant interaction between corn silage and trace mineral for DMI and milk yield. Cows fed the BM3 diets had greater DMI and milk yield compared to the cows fed the CON diets. The cows fed the HTM diets had greater DMI than cows fed STM diets. The cows fed the BM3 diets had greater TTD of dry matter (DM) and organic matter (OM) than cows fed the CON diets. Cows fed the HTM diets had a tendency for greater TTD of neutral detergent fiber (NDF) than the cows fed STM diets. Cows fed the BM3 diets had a faster passage rate of small- and medium-sized corn silage NDF particles than cows fed the CON diets. The study addressing the second objective (Chapter 4) created a model that accurately quantifies the effects of stocking density and feeding frequency on behavior and performance of lactating dairy cattle. The foundation of the management model was a time budget. The eating time was predicted using common on-farm measures (NDF content, physically effective NDF, body weight, and milk yield) and had a good predictive ability with a mean absolute error of 39 min/d regardless of parity. Stocking density affected lying time, which accounted for 76% of the variance in lying time. The adjusted lying time was then used to predict a milk yield, which accounted for 36% of the variance in milk yield. The peuNDF240 accounted for 60% of the variance in DMI. Brown midrib-3 corn silage enhanced DMI, milk yield, TTD of OM, and greater passage rate of corn silage particles. Hydroxy trace minerals improved DMI, tended to improve TTD of NDF. The management model appeared to be a useful tool, although more data and research are needed to validate the model. In the future, hopefully, both forage quality and management decisions will be included in the same nutritional model to predict feed intake more accurately.

Evaluation of Feed Energy in Relation to Milk Production of Dhia-tested Dairy Cows in Lousiana

The Milk Production Values and Calcium and Phosphorus Utilization of These Hays After Balancing the Protein in the Ration

Effects of Forage Quality and Management Decisions on Feed Intake of Lactating Dairy Cows

Seventh Revised Edition, 2001

Increase in Milk Production and Nutrient Use Efficiency and Decrease in Methane Emission

Almond Hulls in Diets for Lactating Goats

This manual explains the background and principles involved in deriving the FiM system and provides the rationale and the equations for the prediction of intake and the calculation of the requirements and supply of energy and protein. In addition the manual recognizes that an applied feeding system is only part of the process of diet formulation and provides a series of decision support systems (DSS) to assist in building rations for dairy cows.

Excerpt from The Influence of Calcium and Phosphorus in the Feed on the Milk Yield of Dairy Cows In the case of cows, of which the milk yield has been reduced by several years' standard feeding, a greatly increased yield can be brought about by feeding alternated rations with phosphate dur ing the dry period. This is taken to mean that the ordinary rations are more likely to be deficient in one or both of the principal bone building elements than in any other constituent. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at www.forgottenbooks.com This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

The cow is the most productive, efficient creature on earth. She will give you fresh milk, cream, butter, and cheese, build human health and happiness, and even turn a profit for homesteaders and small farmers who seek to offer her bounty to the local market or neighborhood. She will provide rich manure for your garden or land, and will enrich the quality of your life as you benefit from the resources of the natural world. Quite simply, the family that keeps a cow is a healthy family. Originally published in the early 1970s as The Cow Economy and reprinted many times over, Keeping a Family Cow has launched thousands of holistic small-scale dairy farmers and families raising healthy cows in accordance with their true nature. The book offers answers to frequently asked questions like, 'Should I get a cow?' and 'How Much Space do I need?' in addition to extensive information on: • The health benefits of untreated milk; • How to milk a cow effectively and with ease; • Choosing your dairy breed; • Drying off your cow; • Details on calving and breeding; • The importance of hay quality and how to properly feed your cow; • Fencing and pasture management; • Housing, water systems, and other supplies; • Treating milk fever and other diseases and disorders; • Making butter, yogurt, and cheese, and, of course . . . • . . . Everything else the conventional dairy industry doesn't tell us! Now revised and updated to incorporate new information on the raw milk debate, the conversation about A1 vs. A2 milk, fully grassfed dairies, more practical advice for everyday chores, and updated procedures for cow emergencies. Keeping a Family Cow has not only stood the test of time, it still remains the go-to inspirational manual for raising a family milk cow nearly forty years after its first publication. Joann Grohman has a lifetime of practical experience that has been bound into this one volume and presented in the spirit of fun and learning.

Infant and young child feeding

The Carry-over of Aflatoxins in Dairy Feed to Milk of Modern Holsteindairy Cows

Nutrient Requirements of Dairy Cattle

Four Areas of New York, 1957

The Influence of Calcium and Phosphorus in the Feed on the Milk Yield of Dairy Cows

The high cost of protein feeds and the growing concern for the environment has motivated dairy producers and nutritionists to focus their attention on increasing nitrogen (N) use efficiency in dairy farms. It is well recognized that reducing N content of cattle diets is the single most important factor to increase the efficiency of N use. However, to effectively feed lower protein diets requires the nutritionist to know the availability of N in feeds in order to not negatively affect milk production. Nutrition models are an essential tool to allow feeding lower protein diets. However, these models require precise characterization of N in feeds. A new assay was developed that predicts N indigestibility (unavailable N, uN) in non-forage feeds using an in vitro approach. This approach is known as the in vitro N indigestibility assay (IVNIDA). The predictions of this assay have not been prospectively evaluated in lactating dairy cattle as a primary experimental objective. The objective of this study was to evaluate in high producing dairy cattle, both the outcome of the IVNIDA and the ability to utilize the prediction of the uN assay in the Cornell Net Carbohydrate and Protein System (CNCPS) to predict cattle performance. To evaluate the uN assay predictions, a replicated pen study was conducted to assess the effect of balancing diets for uN on the performance of high producing dairy cattle. One hundred and twenty-eight cattle that were greater than 60 days in milk (DIM) at the beginning of the experiment were distributed into 8 pens of 16 cows and pens were randomly allocated to the two dietary treatments. Cattle were fed one of two iso-nitrogenous, iso-caloric and iso-NDF treatment diets where the only difference was from the inclusion of two different blood meals (BM) used in each diet. The uN content of the two BM was 9% and 34% as predicted by the assay, whereas with acid detergent insoluble nitrogen, no difference in indigestibility was expected. The inclusion of the BM was done on an iso-nitrogenous basis and the formulated predicted difference in uN was 39 g/d or 5.8% of actual N intake, thus that represented the difference in available N between the two treatments. There was no effect of uN on dry matter intake (DMI) or N intake and averaged 27.3 kg/d and 668 g/d for both treatments, respectively. However, milk yield and energy corrected milk (ECM) were 1.6 and 1.9 kg/d higher for the cows fed the LOW uN diet (P

Due to concern over nitrogen (N) emissions, this study attempted to evaluate dietary approaches to reduce N excretion by dairy cattle. Knowledge about potential N sources that were either unaccounted for or under-predicted by CPM Dairy and the Dairy NRC (2001) was used to formulate rations that were much lower in crude protein (CP) than typically fed to dairy cattle but would potentially not decrease production. Specifically, the three diets fed were predicted to have: (1) positive rumen N and metabolizable protein (MP) balances (Diet P) (2) negative MP balance and positive rumen N balance (Diet N), or (3) negative rumen N balance but positive MP balance (Diet T) as predicted by CPM Dairy version 3. The objective of this experiment was to determine whether, and to what extent, the decrease in predicted ruminally available N and MP supply would affect milk production. Eighty-eight multiparous lactating Holstein cows (83 ± 20 DIM), were blocked by average daily milk yield to 50 DIM and parity and assigned to three diets differing in N content or predicted rumen degradability of the feed N. The diets were formulated with CPM Dairy V3 using library values for all feeds except corn silage where actual chemical, digestibility, and degradation rate values were determined and used. The diets (DM basis) consisted of approximately 50% corn silage, 2% wheat straw and 48% of a diet specific ingredient mix and were formulated for 22.2 of kg DMI. Actual diet CP levels were 16.7, 14.2 and 14.3% for Diets P, N and T, respectively. The predicted CPM Dairy rumen N balance at the formulated DMI was 29 and 27 g for Diets P and N and negative 39 g/d for Diet T, whereas the predicted MP balance was 263 and negative 145 and 91 g/d for Diets P, N and T, respectively. Monensin was included in the diets at a formulated intake of approximately 300 mg per cow per d and somatotropin was administered per label. Actual DMI for cattle fed these treatments were 25.7, 25.5 and 24.2 kg/d for Diets P, N and T, respectively and were significantly lower for Diet T. Actual milk yield was 45.0, 42.6 and 43.3 kg/d and 3.5% FCM was 38.1, 36.5, and 36.4 kg/d for cows fed Diets P, N and T, respectively and was significantly lower for cows fed Diets N and T. Milk protein percent was not affected by diet; however, milk protein yield was significantly greater for cows fed Diet P due to the difference in milk yield. Plasma urea N concentrations were 11.31, 8.40 and 7.13 mg/dl for cows fed diets P, N and T, respectively and were different and paralleled the rumen ammonia levels of 8.32, 6.58 and 5.84 mg/dl. Milk fat depression (MFD) was observed in all cows and was not affected by treatment, and the average milk fat levels were 2.67, 2.68 and 2.54% for diets P, N and T, respectively. To determine if monensin was partially responsible for the MFD, monensin was removed from the diets of approximately half of the cows on treatment once they had finished the experimental period. Removal of monensin resulted in a 30% increase in milk fat percent, and milk protein content was not affected. Calculated milk N:intake N ratios for the three treatments were 0.31, 0.33 and 0.36 for Diets P, N and T respectively. The results of this study suggest that more productive N is available than currently predicted by either CPM Dairy and the Dairy NRC (2001). Understanding where these differences exist would allow for feeding less CP to dairy cattle and decreasing N emissions to the environment. It may also be a profitable strategy for dairy farmers, as they would be able to reduce their purchase of costly protein feeds, but that was not demonstrated in this study - primarily due to the severe milk fat depression that decreased the economic value of milk. However, ration cost was not a concern for this experiment, and that aspect can be considered when implementing feeding strategies stemming from this research. (Abstract).

The book review the various milk production system according to agro-climate and technical, economical and sociological conditions, review new knowledge in ruminant digestion nutrition and physiology, match milk production systematic available and potential feed resources, taking into account their nutritional characteristics. The book make recommendations for the development of sustainable milk production systems based on locally available feed resources. Contents Chapter 1: Medium Terms Outlook for Dairying in the Developing Countries by W Krostitz, Chapter 2: The Lactating Cow in the Various Ecosystems: Environmental Effects on Its Productivity by H D Johnson, Chapter 3: Physiological Constraints to Milk Production: Factors which Determine Nutrient Partitioning, Lactation Persistency and Mobilization of Body Reserves by Y Chilliard, Chapter 4: Influence of Nutrition on Reproductive Performance of the Milking/Gestating Cow in the Tropics by K H Lotthamer, Chapter 5: The Role and Mechanisms of Genetic Improvement in Production Systems Constrained by Nutritional and Environmental Factors by O Smitstad, Chapter 6: Matching Livestock Systems with Available Resources by T R Preston, Chapter 7: Nutritional Characteristics of Tropical Feed Resources: Natural and Improved Grasslands, Crop Residues and Agro Industrial by Products by M Chenost and R Sansoucy, Chapter 8: Feeding Strategies for Improving Milk Production of Dairy Animals Managed by Small Farmers in the Tropics by R A Leng, Chapter 9: Feeding Riverine Buffaloes for Milk/Dual Purpose Production by A M El Serafy, Chapter 10: Feeding Swamp Buffalo for Milk Production by S Khajarern and J M Khajarern, Chapter 11: Future Prospects for Fodder and Pasture Production by A Aminah and C P Chen, Chapter 12: Forage and Legumes as Proteing Supplements for Pasture Based Systems by F A Moog, Chapter 13: The Development of Dairy Farming in Thailand by S Pichet, Chapter 14: Milk Production Systems Based on Pasture in the Tropics by Roberto Garcia Trujillo, Chapter 15: Dairy Production in the Semi Arid Rangelands of West Africa by Modibo Traore, Chapter 16: Feeding Systems and Problems in he Indo Ganges Plain: Case Study by V C Badve, Chapter 17: Feeding Dairy Cattle in Tropical Region of China by Cheng Naging, Chapter 18: Milk Production Systems in Tropical Latin America by J I Restrepo, E Murgueitio and T R Preston, Chapter 19: Restricted Suckling in Dual Purpose Systems, Chapter 20: Heifer Rearing in the Tropics by J Ugarte, Chapter 21: Feeding Cows for Milk Production in the Arusha/Kilimanjaro Coffee/Banana Belt of Tanzania FAO Project: Assistance to Smallholders in Dairy Development: Case Study by L S Morungu, Chapter 22: Milk Production From Tropical Fodder and Sugarcane Residues Case Study: on Farm Research in Mauritius by A A Boodoo, Chapter 23: Training in the Development of Feed Resources by R W Froemert.

Effect of Environment on Nutrient Requirements of Domestic Animals

Recent Advances in Animal Nutrition 2002

Feeding Alfalfa and Timothy Hays to Dairy Cows

Feeding Dairy Cows in the Tropics

Relationships Among Freshening Date, Feeding Practices, Production Level, and Profits in Milk Production

Effect of Feeding Beet Pulp on Milk Production and Feed Utilization in Dairy Cows and Sheep

In the high Andean community of Tunshi San Nicolá s, Ecuador, families own dairy cattle which are milked once daily. Milk is sold to the local cheese plant as part of the families' income. Many community members also belong to a cooperative which owns and operates the cheese plant. This cooperative owns 25 head of Holstein-crossbred cattle. Feed for these cattle consists of a six hour (10:00 A.M.-4:00 P.M.) pasture (alfalfa/grass mixture) grazing period. For the remainder of the day cattle are housed in dry lots with no feed. This switch-back experiment was performed to determine the effects that supplementing the diet of lactating cows with alfalfa would have on milk production. The eight lactating cows owned by the cooperative were utilized in this study. Information on parity, days in milk, and milk production were lacking. Therefore, milk production per cow was quantified during an eight day period and cows were ranked and paired based on this measure. The control treatment consisted of the traditional six hours of pasture grazing. The supplement treatment consisted of the six hours of pasture grazing plus offering freshly cut alfalfa ad libitum from 4:00 P.M. until 8:00 A.M. Milk production per cow was measured on a daily basis. Each cow consumed approximately 30 kilograms of fresh-cut alfalfa per day while on the supplement treatment. Supplemental feeding increased daily milk production by 1.13 liters/cow (P

Feed Into MilkA New Applied Feeding System for Dairy Cows : an Advisory Manual

Aflatoxins are hepatotoxic and carcinogenic secondary metabolic products from the fungal species Aspergillus flavus and Aspergillus parasiticus. Aflatoxin M1 (AFM1) is the major metabolite of Aflatoxin B1 (AFB1) present in mammalian milk. The US Food and Drug Administration (FDA) dictates a maximum allowable concentration of 20 µg/kg total aflatoxin in food and feed intended for dairy consumption, and 0.5 µg/kg AFM1 in milk and milk products. The European Commission dictates a maximum allowable concentration of 4 µg/kg total aflatoxin and 0.05 µg/kg AFM1 respectively. The carry-over of AFB1 (the amount of AFB1 in the feed that is excreted as AFM1 in the milk) is a major factor used to create regulations for acceptable AFB1 concentrations in dairy cattle feed. It has been observed that higher producing dairy cows (30-40 kilograms of milk per day) have a higher carry-over rate, but current regulations use older studies using low-producing dairy cows (10-20 kilograms of milk per day) as a reference for risk. The objective of this project was to measure the carry-over rate of AFB1 from feed to AFM1 in the milk of modern, high-producing US Holsteins milked three times a day to provide a more relevant assessment for current regulations. Corn naturally infected with aflatoxin-producing fungi was used to imitate a real-world contamination scenario, an approach applied in only one previous study (Frobish et al., 1986). Three replications of a feeding trial to test carry-over in high-producing dairy cows were completed; each using 12 high-producing dairy cows in early- to mid-lactation, fed naturally contaminated corn meal top-dressed on their daily total mixed ration. Cows in each replication were assigned to: control (0 µg/kg), low (10 µg/kg), or high (20 µg/kg) AFM1 groups. Feed and milk samples were taken for seven (replicates 1 and 2) or two (replicate 3) days and analyzed with a VICAM fluorometer. Using linear regression, the direct carry-over rate was 6.5%, much higher than the 1 to 2% estimated by previous researchers using low-producing dairy cows. These findings suggest that the US regulatory limit of 20 µg/kg of total aflatoxin in the feed is not a guarantee of protection against violating the regulatory limit of 0.5 µg/kg of AFM1 in milk of high-producing dairy cows.

Effect of Genotype of Cow and System of Feeding on Milk Production, Feed Intake and Nutrient Utilisation of Spring-calving Holstein-Friesian Dairy Cows in Ireland

Determination of Feed Unavailable Nitrogen to Increase Productive Efficiency in High Producing Dairy Cattle

Influence of Calcium and Phosphorus in Feed on Milk Yield of Dairy Cows

Balanced Feeding for Improving Livestock Productivity

Grain Feeding Related to Milk-feed Price Ratios

Effect of Changes in Milk and Feed Prices and in Other Factors Upon Milk Production in New York

Animal Agriculture: Sustainability, Challenges and Innovations discusses the land-based production of high-quality protein by livestock and poultry and how it plays an important role in improving human nutrition, growth and health. With exponential growth of the global population and marked rises in meat consumption per capita, demands for animal-source protein are expected to increase 72% between 2013 and 2050. This raises concerns about the sustainability and environmental impacts of animal agriculture. An attractive solution to meeting increasing needs for animal products and mitigating undesirable effects of agricultural practices is to enhance the efficiency of animal growth, reproduction, and lactation. Currently, there is no resource that offers specific knowledge of both animal science and technology, including biotechnology for the sustainability of animal agriculture for the expanding global demand of food in the face of diminishing resources. This book fills that gap, giving readers all the necessary information on important issues facing modern animal agriculture, namely its sustainability, challenges and innovative solutions. Integrates new knowledge in animal breeding, biotechnology, nutrition, reproduction and management Addresses the urgent issue of sustainability in modern animal agriculture Provides practical solutions on how to solve the current and future problems that face animal agriculture worldwide

Relation of Feed Requirement to Milk Production

Keeping a Family Cow

Estimating Profitability of Dairy Cows

Feed Consumed in Milk Production

Factors Affecting Feed Digestibility in Dairy Cows

Effects on Milk Yield and Composition, Feed Intake and Digestibility