Dairy Farm Manure Management

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Water Quality Information Center

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SEARCH STRATEGY

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Dairy Farm Manure Management
1 Acidogenic fermentation of dairy manure.  
Krones, M.J.; Johnson, A.T.; Hao, O.J.  
Language: English  
Descriptors: Dairy farms; Liquid manures; Anaerobic digestion; Analysis; Biogas; Methane production

2 Anaerobic-aerobic biological treatment of a mixture of cheese whey and dairy manure.  
Lo, K.V.; Liao, P.H.  
Language: English  
Descriptors: Cheesemaking; Whey; Dairy cattle; Cattle manure; Mixtures; Waste treatment; Anaerobic treatment; Aerobic treatment; Biological treatment; Digesters; Methane production; Treatment; Efficiency

3 Analysis of the long-run financial impact of the 'Dairy Rule' on dairies in the Lake Okeechobee drainage basin.  
ix, 98 leaves : ill. ; 29 cm. Typescript. Vita. Includes bibliographical references (leaves 94-97).  
Language: English; English  
Descriptors: Dairy laws; Dairy waste

4 Animal waste management.  
Sweeten, J.M.; Baird, C.; Manning, L.  
College Station, Tex. : The Service; 1991 Sep.  
Descriptive: Texas; Animal wastes; Feedlots; Dairy farms; Waste disposal; Regulation; Runoff; Water pollution; Water quality

5

Beef and dairy cattle research report 1990.
Chapman, H.D.; Griffin, C.D.

Language: English

Descriptors: Louisiana; Beef cattle; Dairy cattle; Research projects; Parasites; Breeding; Cattle feeding; Forage; Cattle diseases; Animal wastes; Marketing

6

Biofirm will treat dairy waste.

Language: English

Descriptors: Oregon; Dairy effluent; Waste utilization; Biogas; Anaerobic digestion

7

Biogas production after solid-liquid separation of dairy manure. Haugen, V.J.; Lindley, J.A.

Language: English

Descriptors: Dairy effluents; Biogas slurry; Energy sources; Digesters; Methane production

8


Language: English

Descriptors: Dairy wastes; Waste utilization; Methane
Biogas production from diary manure using continuous mix and no-mix mesophilic reactors.
Ghaly, A.E.
Language: English
Descriptors: Methane production; Dairy industry; Animal manures; Anaerobic digesters; Biodegradation

Bulk density and thermal properties of Moroccan dairy cattle manure. Achkari-Begdouri, A.; Goodrich, P.R.
Language: English
Descriptors: Morocco; Dairy cattle; Cattle manure; Bulk density; Specific heat; Thermal conductivity; Aerobic treatment; Anaerobic treatment; Total solids; Concentration; Regression; Equations

Center stage: ecology.
Sauber, C.M.
Language: English
Descriptors: Florida; California; Oregon; Washington; Texas; Dairy farming; Manures; Waste disposal; Water pollution; Law enforcement; Regulations; Licenses and permits

Colonization and response of Culicoides variipennis (Diptera: Ceratopogonidae) to pollution levels in experimental dairy wastewater ponds. Mullens, B.A.; Rodriguez, J.L.
Lanham, Md. : The Entomological Society of America; 1988 Nov.
Language: English
Descriptors: California; Culicoides variipennis; Aquatic
Components of dairy manure management systems.
Van Horn, H.H.; Wilkie, A.C.; Powers, W.J.; Nordstedt, R.A.
Champaign, Ill. : American Dairy Science Association; 1994
Jul. Includes references.

Language: English

Descriptors: Cattle manure; Dairy farms; Application to land; Dairy cows; Excretion; Waste treatment; Waste disposal; Waste utilization; Energy balance; Water use; Ammonia; Methane; Nitrogen; Phosphorus

Abstract: Dairy manure management systems should account for the fate of excreted nutrients that may be of environmental concern. Currently, regulatory oversight is directed primarily at the assurance of water quality; N is the most monitored element. Land application of manure at acceptable fertilizer levels to crops produced on the farm by hauling or by pumping flushed manure effluent through irrigation systems is the basis of most systems. Nutrient losses to surface and groundwaters can be avoided, and significant economic value can be obtained from manure as fertilizer if adequate crop production is possible. Dairies with insufficient crop production potential need affordable systems to concentrate manure nutrients, thereby reducing hauling costs and possibly producing a salable product. Precipitation of additional nutrients from flushed manures with sedimented solids may be possible. Composting of separated manure solids offers a possible method to stabilize solids for distribution, but, most often, solids separated from dairy manures are fibrous and low in fertility. Manure solids combined with wastes from other sources may have potential if a marketable product can be produced or if sufficient subsidy is received for processing supplementary wastes. Solutions to odor problems are needed. Energy generated from manure organic matter, via anaerobic digestion, reduces atmospheric emissions of methane and odorous compounds. Use of constructed wetlands or harvesting of photosynthetic biomass from wastewater has the potential to improve water quality, making extensive recycling possible.

Constructed wetland site design and installation.
Ulmer, R.; Cathcart, T.; Strong, L.; Pote, J.; Davis, S.
Constructed wetlands clean up: they could be an inexpensive, low-tech cure for farm pollution headaches.
Becker, H.
Agricultural research / . p. 20; 1993 Dec.

Constructed wetlands for dairy wastewater treatment.

Continuous production of biogas from dairy manure using an innovative no-mix reactor.
Ghaly, A.E.; Ben-Hassan, R.M.

Cost and economic feasibility of dairy waste management: central Texas representative dairies.
Allen, G.; Lovell, A.; Schwart, B.; Lacewell, R.; Schmucker, J.; Leatham, D.; Richardson, J.
College Station, Tex. : The Service; 1991 May28.
Balanced dairying : Economics - Texas Agricultural Extension
Cost comparisons of alternative methods for processing recycled waste newspapers into farm-animal bedding.

Beierlein, J.G.; McSweeny, W.C.; Woodruff, B.A.

Language: English
Descriptors: Pennsylvania; Litter; Newspapers; Recycling; Waste disposal; On-farm processing; Chopping; Cost effectiveness analysis; Transport costs; Dairy farms

Costs of existing and recommended manure management practices for house fly and stable fly (Diptera: Muscidae) control on dairy farms. Lazarus, W.F.; Rutz, D.A.; Miller, R.W.; Brown, D.A.
Lanham, Md. : Entomological Society of America; 1989 Aug.

Language: English
Descriptors: Maryland; New York; Farm dairies; Musca domestica; Stomoxys calcitrans; Insect control; Manures; Waste disposal; Production costs; Regression analysis

Abstract: Costs of fly control practices were estimated for 26 New York and Maryland dairy farms. Objectives were to characterize existing practices, compare them with the cost of more frequent and complete manure removal to reduce fly breeding, and to compare costs of manure removal and insecticide application. Information was collected in scouting visits and personal interviews of farm operators. Equipment, labor, and bedding costs were included for manure removal. Insecticide application cost included chemicals and labor for application. A typical farm with a stanchion barn had manure removal costs of $0.348 per cow per day. Recommended changes would increase costs by 0.016-0.033 per cow per day. Insecticide costs averaged $0.021 per cow per day. It may be possible to eliminate many of the insecticide applications on the farms by using the recommended 7-d manure removal practice. Even if insecticides are not eliminated entirely, increased manure removal costs would be offset by some
reduction in insecticide cost. This also would have the additional benefit of greatly slowing the development of insecticide resistance by the flies.

21 NAL Call. No.: 100 C12CAG
Cultural management of bluetongue virus vectors.
Mullens, B.A.; Rodriguez, J.L.
Oakland, Calif. : Division of Agriculture and Natural Resources, University of California; 1990 Jan.
Language: English
Descriptors: California; Dairy cattle; Bluetongue virus; Disease vectors; Culicoides variipennis; Breeding; Habitats; Dairy farming; Waste waters; Ponds; Surveys

22 NAL Call. No.: 57.8 C734
Dairy farmers shift to composting.
Rynk, R.
Language: English
Descriptors: U.S.A.; Cabt; Canada; Cabt; Composting; Cattle manure; Dairy farms; On-farm processing; Surveys

23 NAL Call. No.: SB197.B7
Dairy farming and river quality.
Schofield, K.; Whitelaw, K.; Merriman, R.P.
Language: English
Descriptors: Wales; Dairy farming; Agricultural wastes; Water pollution; Rivers; Water composition and quality

24 NAL Call. No.: 44.8 J822
Dairy manure and plant nutrient management issues affecting water quality and the dairy industry.
Lanyon, L.E.
Language: English
Descriptors: U.S.A.; Cabt; Cattle manure; Water pollution; Pollution control; Dairy farms; Cattle feeding; Production costs; Environmental policy
Abstract: Specific requirements for dairy manure management to protect water quality from nutrient pollution depend on the organization of individual farms. Further, the management requirements and options are different for point (farmstead) and nonpoint (field-applied) sources of pollution from farms. A formal management process can guide decisions about existing crop nutrient utilization potential, provide a framework for tracking nutrients supplied to crops, and identify future requirements for dairy manure management to protect water quality. Farm managers can use the process to plan daily activities, to assess annual nutrient management performance, and to chart future requirements as herd size increases.

Agronomic measures of nutrient balance and tracking of inputs and outputs for various farm management units can provide the quantitative basis for management to allocate better manure to fields, to modify dairy rations, or to develop alternatives to on-farm manure application. Changes in agricultural production since World War II have contributed to a shift from land-based dairy production to a reliance on capital factors of production supplied by the dairy industry. Meanwhile, management of dairy manure to meet increasingly stringent water quality protection requirements is still a land-based activity. Involving the dairy industry and off-farm stakeholders as participants in the management process for field, farm, and regional dairy production can be the basis for decision-making to reconcile the sometimes conflicting demands of production and water quality protection.
water treatment; Biological techniques; Anaerobic treatment; Lagoons

27 NAL Call. No.: aZ5071.N3
Dairy waster: management alternatives for pollution control
Dombrowski, J.E.
Quick bibliography series - U.S. Department of Agriculture,

Language: English
Descriptors: Dairy wastes; Pollution; Control; Bibliographies

28 NAL Call. No.: TD420.A1P7
Dairy wastewater treatment and reuse.
Hadjivassilis, I.

Language: English
Descriptors: Cyprus; Dairy industry; Industrial wastes; Waste water treatment; Water reuse; Activated sludge; Irrigation water

29 NAL Call. No.: 56.9 S032
Dairy-siting criteria and other options for wastewater management on high water-table soils.
Allen, L.H. Jr

Language: English
Descriptors: Florida; Dairy wastes; Waste waters; Soil types; Soil properties; Site requirements; Waste water treatment; Water table; Water composition and quality; Eutrophication; Phosphorus

30 NAL Call. No.: S671.A66
Design of a semi-liquid dairy cattle manure spreader/injector.
Lague, C.
Abstract: Existing solid and liquid manure spreaders are not well adapted for surface spreading or direct subsurface injection of semiliquid dairy cattle manure. By taking into account the characteristics of this type of manure, a machine for either spreading or injecting semi-liquid manure was designed and constructed. Its manure handling system consisted of a tiltable tank connected to a vibrating distribution manifold that directed the manure to the spreading or injection devices. Manure was fed to the injectors by gravity via 152 mm (6 in.) diameter hoses. The 305 mm (12 in.) wide injectors were operated at depths not exceeding 203 mm (8 in.) in order to reduce draft requirements. Results from preliminary field testing of the prototype are reported along with the design modifications that were recommended following these tests.

31  NAL Call. No.: S441.S855
Development of an environmentally safe and economically sustainable year-round minimum tillage forage production system using farm animal manure as the only fertilizer.
Johnson, J.C. Jr
Sustainable Agriculture Research and Education (SARE) or Agriculture in Concert with the Environment (ACE) research projects. 22 p.; 1990. SARE Project Number: LS-90-205. Record includes 3 1/2 floppydisk and papers and articles released or published as a result of project.

Language: English

Descriptors: Georgia; Cabt; Cynodon dactylon; Zea mays; Secale cereale; Minimum tillage; Cattle manure; Application rates; Soil fertility; Use efficiency; Nitrogen; Phosphorus; Potassium; Calcium; Magnesium; Crop yield; Soil depth; Dairy farming

32  NAL Call. No.: 56.9 SO32
Distributions of residual soil phosphorus along transects for three dairies in Okeechobee County, Florida.

Language: English

Descriptors: Florida; Soil pollution; Water pollution; Dairy
DXMAS: an expert system program providing management advice to dairy operators.

Schmisseur, E.; Gamroth, M.J.
Champaign, Ill. : American Dairy Science Association; 1993
Jul. Includes references.

Language: English

Descriptors: Expert systems; Dairy farming; Farm management; Decision making; Information systems; Culling; Cattle manure; Replacement; Crops; Financial planning

Abstract: An expert system, or knowledge-based, microcomputer program, DXMAS, was designed and developed to diagnose dairy management problems of dairy farmers of Tillamook County, Oregon and, as appropriate, to advance potential farm reorganization and expansion options. The program provokes management action by projecting lost income opportunities attributed to major management problems and missed reorganization and expansion opportunities. The DXMAS program analyzes annual economic and production performance data provided by dairy operators and has demonstrated the ability, in field testing of nine different dairy operations, to emulate dairy management experts in the diagnoses of 95 individual dairy management problems. In those field tests, the DXMAS program identified a variety of management problems and estimated annual lost income opportunities ranging from $25 to $450 per milk cow. Field testing suggested that the DXMAS program can provide a wide range of expert management advice to dairy operators.

Effect of anaerobic digestion on nutrient availability from dairy manure.

Dahlberg, S.P.; Lindley, J.A.; Giles, J.F.

Language: English

Descriptors: North Dakota; Triticum aestivum; Anaerobic digesters; Cattle; Manures; Nutrient availability; Nitrogen; Soils

Effect of incorporating rolled barley in autumn-cut ryegrass silage on effluent production, silage fermentation and cattle performance.

Jones, D.I.H.; Jones, R.; Moseley, G.
The Journal of agricultural science v. 115 (pt.3): p. 399-408;
1990 Dec. Includes references.

Language: English

Descriptors: Wales; Steers; British friesian; Hereford; Crossbreds; Liveweight gain; Unrestricted feeding; Barley; Feed supplements; Lolium multiflorum; Lolium perenne; Nutritive value; Ryegrass silage; Dairy wastes; Effluents; Pollution

36 NAL Call. No.: TD930.A32
Effect of the organic volumetric loading rate on soluble COD removal in down-flow anaerobic fixed-bed reactors.
Sanchez, E.P.; Weiland, P.; Travieso, L.

Language: English

Descriptors: Piggery effluent; Beef cattle; Cattle manure; Dairy cattle; Torula; Yeasts; Wastes; Anaerobic digesters; Chemical oxygen demand; Models

37 NAL Call. No.: TD930.A32
Effects of dairy manure application rate and timing, and injector spacing and type on corn silage production.
Safley, L.M. Jr; Westerman, P.W.; King, L.D.

Language: English

Descriptors: Dairy cattle; Cattle manure; Liquid manures; Application to land; Application rates; Application date; Soil injection; Zea mays; Maize silage; Crop yield; Nitrogen; Recovery

38 NAL Call. No.: TD930.A32
Effects of diet and storage time on the concentration of sulphide in dairy-cow slurry.
Stevens, R.J.; Laughlin, R.J.; Frost, J.P.

Language: English

Descriptors: Dairy cows; Cattle slurry; Hydrogen sulfide; Concentration; Cattle feeding; Wastes; Storage; Duration; Effects
The effects of operational and financial factors on the economics of biogas production from dairy cow feces and wastewater.

Kobayashi, S.; Masuda, Y.

Language: English
Descriptors: Dairy cows; Biogas; Feces; Waste water; Cattle feeding; Animal wastes; Factor analysis; Economic evaluation

Effects of total ammonia on anaerobic digestion and an example of digestor performance from cattle manure-protein mixtures.

Robbins, J.E.; Gerhardt, S.A.; Kappel, T.J.

Language: English
Descriptors: Dairy cattle; Cattle manure; Cattle slurry; Protein; Mixtures; Waste treatment; Anaerobic digestion; Ammonia; Concentration; Digesters; Performance; Acetates; Utilization

Efficacy and longevity of Bacillus sphaericus 2362 formulations for control of mosquito larvae in dairy wastewater lagoons.

Mulla, M.S.; Axelrod, H.; Darwazeh, H.A.; Matanmi, B.A.

Language: English
Descriptors: Culex; Bacillus sphaericus; Larvae; Dairy cattle; Waste waters; Lagoons; Biological control

Efficacy of a juvenile hormone mimic, pyriproxyfen (S-31183), for mosquito control in dairy wastewater lagoons.

Mulligan, F.S. III; Schaefer, C.H.

Language: English
Efficacy of new insect growth regulators against mosquito larvae in dairy wastewater lagoons.
Mulla, M.S.; Darwazeh, H.A.

Language: English

Electric energy management on dairy farms.
Brooks, L.A.
Amsterdam : Elsevier; 1989.

Language: English

Environmental concerns associated with livestock, dairy, and poultry production. Issues for the 1990's, environment

Language: English

Environmental consequences of the structure of agriculture:
the case of southeastern Pennsylvania farms.
Sachs, C.; Bowser, T.

Language:  English
Descriptors: Pennsylvania; Environmental impact; Agricultural structure; Ecosystems; Cattle farming; Beef cattle; Dairy cattle; Poultry farming; Production; Regional development; Water pollution; Animal manures; Pollutants; Nutrient excesses; Water quality; Watersheds

47  NAL Call. No.: SF191.D3
Environmental count down.
Sauber, C.M.

Language:  English
Descriptors: California; Dairy wastes; Environmental pollution; Waste disposal; Water composition and quality; Environmental protection

48  NAL Call. No.: QH540.J6

Language:  English
Descriptors: Dairy cows; Somatotropin; Hormone supplements; Genetic engineering; Environmental impact; Milk production; Cattle manure; Methane production; Nitrogen; Phosphorus; Feed requirements; Energy requirements; Erosion; Dairy farming; Water use

Abstract: The environmental impact of bovine somatotropin (bST) use in dairy cattle (Bos taurus) was analyzed with the following assumptions: base herd (1989) of 10.1 X 10(6) cows, milk production 6475 kg of 3.5% fat per 305 d; bST herd of 8.96 X 10(6) cows, 3.5 kg/d increase during 215 d treatment period; 100% adoption rate, 60 d dry period, 40% replacement rate; all formulated diet from: alfalfa (Medicago sativa L.) hay, corn (Zea mays L.) silage, cracked corn, soybean [Glycine mar (L.) Merr.] meal, and supplement to satisfy level of production. Using these assumptions, the analysis indicates
that the current U.S. milk supply could be produced by 11% fewer cows fed 9% less feed produced on 6% less land, and soil loss would be 5% less. Fossil fuel requirements would be 6% less and irrigation water use would be reduced by 9%. Output of the greenhouse gas methane would be decreased 9%; manure production and outputs of N and P declined by 10, 8, and 10%, respectively.

Language: English
Descriptors: Dairy wastes; Bacteria; Waste waters; Flushing; Recycling; Microbial water relations; Solar radiation; Predation; Water reuse

Language: English
Descriptors: Dairy wastes; Anaerobic digestion

Language: English
Descriptors: Connecticut; Cabi; Composts; Leaves; Animal wastes; Dairy farms; Low input agriculture; Sustainability

52 Fate and persistence of Bacillus sphaericus used as a mosquito larvicide in dairy wastewater lagoons. Matanmi, B.A.; Federici, B.A.; Mulla, M.S.
Abstract: This paper presents the results of a series of analytical tests performed on pig and dairy cattle manure in order to establish the extent of the correlation between: dry matter (TS) and specific gravity (SG); TS and total Kjeldhal nitrogen (TKN) and total phosphorus (Pt); SG and TKN and Pt. In addition, two N-meters for field use were also used to estimate the ammonium (NH4-H) content. All the variables (TS, SG, TKN, Pt, NH4-N) show a high index of correlation for both the pig and dairy cattle slurry and the linear relations applied proved adequate in all cases. Though the precision of the equations is not very high, the estimate for TKN and Pt content, obtained from the relationship between the SG and these elements is nevertheless acceptable for practical farm use of animal manure.
Abstract: Estimates of N, P, and K availability to corn (Zea mays L.) from injected dairy manure on three field sites in south central Wisconsin were made using a fertilizer equivalence approach. Nutrient uptake from treatments of a control, three rates of manure (approx. 53, 97, and 138 Mg ha⁻¹ yr⁻¹ on a wet basis), and three rates of broadcast fertilizer were evaluated. Crop nutrient recoveries of fertilizer N, P, and K were generally higher than crop recoveries of manure total N, P, and K. Estimates of first year N, P, and K availability showed substantial variability across rate, location, and year with standard deviations often about 50% of the mean. Ranges for N, P, or K availability were 12 to 63, 12 to 89, and 24 to 153%, respectively. These data do not identify those factors responsible for differences in nutrient availability from one site-year to another. Biological or chemical availability indices of a 1-wk anaerobic incubation at 40 degrees C or a 16-h autoclaving in 0.01 M CaCl₂ solution were evaluated as measures of N availability and compared with field results. Correlations between measured changes in NH₄-N from these indices, as well as total Kjeldahl N and inorganic N levels in the top 30 cm of soil 4 to 6 wk after treatment application, and N uptake indicated inorganic N levels to be a better index of N availability than the other indices examined. However, to determine nutrient availability on a routine basis, more reliable biological or chemical indices are necessary. A simple model may help to simulate environmental effects and the contribution of residual nutrients in the soil.
Soviet biotechnology (3): p. 41-46; 1989. Translated from:
Includes references.
Language: English; Russian

Descriptors: Fungi; Beta-galactosidase; Immobilization; Whey;
Lactose; Hydrolysis; Enzyme activity; Dairy effluent; Waste
treatment; Heat stability; Glucose syrups; Galactose; Ph

Abstract: A study has been made of the properties of
immobilized fungal beta-galactosidase (the trademarked
preparation Galactosyl). The pH optima at different
temperatures, the temperature optimum for enzyme action, pH-
stability, and thermostability were determined. Preparation
kinetic constants were calculated. Effective biocatalyst
activity was found to depend on degree of substrate
hydrolysis. The Galactosyl preparation was shown to be a high-
activity biocatalyst suitable for producing glucose-galactose
syrup from dairy industry wastes.

58
Goodbye corn, hello profits.
McNamara, K.
Language: English

Descriptors: Wisconsin; Dairy farming; Forage crops; Liquid
manures; Protein content; Mixed pastures

59
'Grass farming' beats corn!.
Cramer, C.
Language: English

Descriptors: Dairy cows; Grazing; Grasses; Pastures; Legumes;
Liquid manures

60
Ground water contamination from agricultural sources:
implications for voluntary policy adherence from Iowa and
Virginia farmers' attitudes. Halstead, J.M.; Padgitt, S.;
Batte, S.S.
Greenbelt, Md. : Institute for Alternative Agriculture; 1990.
126-133; 1990. Includes references.
Language: English
Abstract: Contamination of ground water from agricultural sources has been documented in a majority of the contiguous United States. In this study, we examine the potential for voluntary adoption of management practices that reduce risk of ground water contamination and discuss how farm operators' attitudes regarding the environment might affect the success of voluntary programs. Farmers' behavior and attitudes in Rockingham County, Virginia, and Big Spring Basin, Iowa, reveal that both groups consider the ground water issue to be a serious problem to which they are contributing. This awareness is a significant first step in prompting consideration of management practices that reduce the threat to ground water quality. We also found that the worst offenders—that is, farmers applying nitrogen well above agronomic recommendations—were those with the least concern about the problem. If major shifts in farming practices are to occur voluntarily, major incentives or disincentives are needed. Even though the concern about ground water quality is high, the documented risks perceived by farmers are not strongly convincing. The economic incentives for change are questionable at best. Voluntary adoption of best management practices is only one of several policy options. Ultimately, policies designed to reduce ground water contamination may need a mix of strategies, including economic incentives and disincentives, zoning and land use restrictions, environmental regulations, and bans on agricultural chemicals.
Abstract: A dairy waste management spreadsheet was developed and applied along with partial budgets and whole firm, Monte Carlo simulations for Texas dairies to evaluate the impact that Texas water quality laws have on dairy profitability and survival. Results showed that representative 300- and 720-cow dairies will incur additional annual costs of $60 and $81 per cow, respectively. Compliance with water quality laws reduces net farm income by 27 and 63% for 720-cow dairies with low and high debt positions, respectively. The probability of survival of the dairies with low debt was not affected by compliance. The probability of survival of firms with high debt positions decreased by 47 percentage points. Under the conditions modeled, net farm income for representative 300-cow dairies would be negative after compliance with water quality laws.
Impacts of EPA dairy waste regulations on farm profitability.
Knutson, R.D.; Outlaw, J.L.; Miller, J.W.
Oak Brook, Ill. : Farm Foundation; 1993.

Language: English

Descriptors: U.S.A.; Cabt; Dairy farms; Dairy wastes; Regulations; Economic impact; Profitability; Environmental policy; Federal government; Government organizations

Isolation of multiple Salmonella serovars from a dairy two years after a clinical salmonellosis outbreak.
Gay, J.M.; Hunsaker, M.E.
Schaumburg, Ill. : The Association; 1993 Nov01.

Language: English

Descriptors: California; Cabt; Dairy cows; Calves; Farm dairies; Salmonella; Serotypes; Salmonellosis; Outbreaks; Persistence; Feces; Waste water; Isolation

Keys to dairy manure management for water quality.
Hermanson, R.E.

Language: English

Descriptors: Dairy wastes; Cattle manure; Farm management; Feces collection; Waste treatment; Water quality
Low-temperature digestion of dairy and swine manure.
Safley, L.M. Jr; Westerman, P.W.
Language: English
Descriptors: Cattle manure; Dairy cattle; Pig manure; Anaerobic digestion; Methane production; Temperature

Manage animal manure for its fertilizer value.
Klausner, S.; Tillapaugh, B.
Language: English
Descriptors: New York; Cattle manure; Dairy wastes; Fertilizer application; Soil testing

Management and policy effects on potential groundwater contamination from dairy waste.
Language: English
Descriptors: Dairy wastes; Groundwater; Water pollution; Economic impact

Masters, B.K.
Managing runoff to protect lake.

Boggs, L.

Language: English

Descriptors: Florida; Water pollution; Feedlot effluent; Dairy effluents; Inland lagoons; Lakes; Computer software; USDA; Eutrophication; Phosphorus

Manure management on dairy farms: are we accountable?.

Leonard, N.
News & views /. p. 3-4; 1993 Sep.

Language: English

Descriptors: Dairy farms; Cattle manure; Farm management; Water quality

Manure without pollution.

Comis, D.

Language: English

Descriptors: Cattle manure; Dairy wastes; Liquid manures; Fertilizers; Fertigation; Rotations; Fields; Sustainability

Mesophilic anaerobic digestion of a mixture of cheese whey and dairy manure.

Lo, K.V.; Liao, P.H.; Chiu, C.

Language: English
Mesophilic anaerobic digestion of dairy cow slurry on a farm scale: energy considerations.

Pain, B.F.; Phillips, V.R.; West, R

Language: English

Descriptors: Dairy effluents; Cattle slurry; Anaerobic digesters; Small farms; Energy recovery; Methane; Waste heat utilization; Electricity; Agricultural engineering; Energy balance

Mesophilic anaerobic digestion of dairy cow slurry on a farm scale: maintenance requirements and reliability.

Chapman, J.M.; Phillips, V.R.; Pain, B.F.

Language: English

Descriptors: Dairy cows; Cattle slurry; Anaerobic digesters; Maintenance; Requirements; Reliability; Costs

Methane production from fresh versus dry dairy manure.

Chen, T.H.; Steinberg, M.P.

Language: English

Descriptors: Africa; Cattle manure; Dairy effluents; Drying; Biological value; Methane production; Digesters; Production potential; Bioassays; Quantitative analysis

Murky water--how we farm our land has far-reaching effects.

Weidner, K.

Language: English
Descriptors: Pennsylvania; Dairy farming; Crop enterprises; Manure spreading; Pollution by agriculture; Water composition and quality

81 NAL Call. No.: 44.8 SO12

Language: English

Descriptors: Great Britain; Dairy effluent; Regulations; Water pollution

82 NAL Call. No.: Videocassette no.1618

Language: English

Descriptors: Dairy cattle; Fertilizers

Abstract: Shows how to recycle dairy cattle manure.

83 NAL Call. No.: 290.9 AM32T

Language: English

Descriptors: Ontario; Cattle slurry; Dairy wastes; Farm storage; Losses; Nitrogen content; Ph; Temperature; Tanks

Abstract: Spatial and temporal variability in the concentration of total Kjeldahl and ammonia (NH3 + NH4+) nitrogen (TKN and AMN, respectively) was studied in 8 to 10% total solids content dairy-cattle manure slurry and its centrifuged supernatant during undisturbed storage in covered, reinforced concrete, farm storage tanks. Slurry was stored in two winter-filled tanks for 285 days, and in two additional summer-filled tanks for 146 days. Although concentration variability with time and space was small relative to the
initial concentrations, slurry at depths of less than 1 m had consistently lower concentrations than at greater depths, particularly after the initial two months of storage. Mass balance for nitrogen (N) indicated a 9% loss in three of the four tanks. A lower loss (4% N) in the fourth tank was accompanied by a decrease in acetic acid concentration and a rise in slurry pH, at all depths, which was not observed in the other tanks. The lower loss of N from this tank than from the other tanks probably occurred to satisfy chemical equilibria that required a greater retention of ammonia (NH3) by the carbon dioxide (CO2) release from acetic acid breakdown. Considerations other than TKN and AMN concentration changes and equilibrium relations may also be important factors for N retention in slurry stored in farm tanks.

Nitrogen fertilizer and dairy manure effects of corn yield and soil nitrate. Jokela, W.E.

Language: English

Descriptors: Vermont; Zea mays; Sandy loam soils; Cattle manure; Dairy cattle; Ammonium nitrate; Nitrogen; Nutrient sources; Application rates; Application date; Crop growth stage; Crop yield; Dry matter accumulation; Grain; Maize silage; Nutrient uptake; Nutrient availability; Soil analysis; Nitrate; Nutrient content; Losses from soil systems; Nitrate nitrogen; Soil solution; Soil depth; Seasonal variation; Precipitation

Abstract: Manure from livestock is an important source of N for crop production in many areas, but efficient management of manure is critical to improve the economics of manure use and to minimize the impact on water quality. A field study was conducted on an Enosburg fine sandy loam (sandy over loamy, mixed, nonacid, mesic Mollic Haplaquent) in northwestern Vermont to evaluate the effect of dairy-manure and N-fertilizer application on corn (Zea mays L.) yields and soil profile NO3 in a silage production system. Treatments consisted or a factorial arrangement of manure (0 and 9 Mg ha-1, dry-matter basis), N rate (56 and 112 kg ha-1 as NH4NO3), and time of N application (planting or six-leaf stage), as well as 0 and 168 kg N ha-1 rate at planting (with and without manure). Yields and N uptake were increased by N fertilizer and by manure. Without manure, grain and silage yields were increased by fertilizer N to the 112 kg ha-1 rate in all years; with manure, N fertilizer did not increase yields significantly. Time of application had little or no effect on yield. Plant uptake of N followed a similar pattern but with somewhat more pronounced effects. A presidedress soil reflected N availability, as indicated relative yields. Manure application rates were equivalent, in terms of yield response, to 73 to 122 kg fertilizer N ha-1 in individual years, which
represented 27 to 44% of the total manure N in the year of application. Sampling of the 1.5-m soil profile before planting and after harvest showed increases in soil NO3 that were related to the amounts of manure and fertilizer N applied. Some decreases in NO3 were measured from fall to spring sampling times, but net losses were minimal where