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Agricultural Research Service, U.S. Department of Agriculture

Evaluation of Agricultural Best Management Practices (I)

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Water Quality Information Center

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EVALUATION OF AGRICULTURAL BEST MANAGEMENT PRACTICES

Agrichemical placement impacts on alachlor and nitrate movement through soil in a ridge tillage system.
Clay, S.A.; Clay, D.E.; Koskinen, W.C.; Malzer, G.L.
New York, N.Y. : Marcel Dekker; 1992.
Journal of environmental science and health : Part B : Pesticides, food contaminants, and agricultural wastes v. 27 (2): p. 125-138; 1992. Includes references.

Language: English

Descriptors: Alachlor; Nitrates; Placement; Movement in soil; Ridging; Tillage; Lysimeters; Leachates; Rainfall simulators; Surface water; Water flow; Profiles; Downward movement

2 NAL Call. No.: TD196.P38F3
Agrochemical trends and the fate of pesticides.
Menn, J.J.
Oakland : University of California, Division of Agriculture and Natural Resources; 1987.
Fate of pesticides in the environment : proceedings of a technical seminar / James W. Biggar and James N. Seiber, editors and technical coordinators. p. 1-2; 1987.
(Publication; 3320). Literature review. Includes references.

Language: English

Descriptors: Pesticides; Pesticide persistence; Pesticide residues; Environmental pollution; Integrated pest management

3 NAL Call. No.: S590.A48
Assessing and managing agricultural nitrogen losses to the environment. Smith, S.J.; Schepers, J.S.; Porter, L.K.
New York, N.Y. : Springer-Verlag; 1990.
Advances in soil sciences v. 14: p. 1-43; 1990. Literature review. Includes references.

Language: English

Descriptors: Nitrogen; Nitrogen cycle; Losses from soil systems; Groundwater pollution; Eutrophication; Air pollution; Volatilization; Ammonia; Nitrous oxide; Nitric oxide; Nitrogen dioxide; Nitrogen fertilizers; Use efficiency; Movement in soil; Leaching; Tile drainage; Runoff; Water erosion; Wind erosion; Conservation tillage; Soil conservation; Irrigation; Nutrient availability; Ammonium; Environmental impact; Research; Literature reviews

4 NAL Call. No.: S604.E35
An assessment of Great Lakes tillage practices and their potential impact on water quality.
Logan, T.J.
Chelsea, Mich. : Lewis Publishers; 1987.
Effects of conservation tillage on groundwater quality : nitrates and pesticides / edited by Terry J. Logan ... [et

al.].. p. 271-276; 1987. Includes references.

Language: English

Descriptors: North central states of U.S.A.; Tillage; Water composition and quality; Fodder crops; Rotations

5 NAL Call. No.: HC79.E5E5
Basic hydrologic studies for assessing impacts of flow diversions on riparian vegetation: examples from streams of the Eastern Sierra Nevada, California, USA.
Kondolf, G.M.; Webb, J.W.; Sale, M.J.; Felando, T.
New York : Springer-Verlag; 1987 Nov.
Environmental management v. 11 (6): p. 757-769. ill., maps; 1987 Nov. Includes references.

Language: English

Descriptors: California; Riparian vegetation; Stream flow; Losses; Hydrological data; Hydroelectric schemes; Geomorphology

6 NAL Call. No.: FICHE 290.9 AM32P
Basin scale assessment of best management practices.
Heatwole, C.D.; Bottcher, A.B.; Baldwin, L.B.
St. Joseph, Mich. : The Society; 1985.
Paper - American Society of Agricultural Engineers (Microfiche collection) (fiche no. 85-2042): 14 p.; 1985. Paper presented at the 1985 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road,. Includes references.

Language: English

Descriptors: Florida; Water management; Water composition and quality; Crop husbandry; Animal husbandry; Practice; Simulation models

7 NAL Call. No.: 290.9 AM32T
Basin scale model for evaluating best management practice implementation programs.
Heatwole, C.D.; Bottcher, A.B.; Baldwin, L.B.
St. Joseph, Mich. : The Society; 1986 Mar.
Transactions of the ASAE - American Society of Agricultural Engineers v. 29 (2): p. 439-444. maps; 1986 Mar. Includes 18 references.

Language: English

Descriptors: Florida; River basins; Watersheds; Pastures; Cattle husbandry; Fencing; Watershed management; Grids; Simulation models; Nitrogen; Phosphorus; Losses; Runoff; Water composition and quality

8

NAL Call. No.: FICHE S-72

Best management practices impacts on water quality in the appoquinimink watershed.

Ritter, W.F.; Chirnside, A.E.M.; Lake, R.W.

St. Joseph, Mich. : The Society; 1988.

American Society of Agricultural Engineers (Microfiche collection) (fiche no. 88-2034): 24 p. maps; 1988. Paper presented at the 1988 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Water composition and quality; Groundwater pollution; Farmland; Soil chemistry; Phosphorus; Nitrates; Atrazine; Erosion; Farm management; Improvement

9

NAL Call. No.: TD427.P35B47 1990

Best management practices to reduce runoff of pesticides into surface water : a review and analysis of supporting research. CIBA-GEIGY Corporation, Agricultural Group, CIBS-GEIGY Corporation, Agricultural Division, Environmental and Public Affairs Dept Greensboro, NC : Environmental and Public Affairs Dept.,; 1992. 47, [10] p. : ill. ; 28 cm. (Technical report (CIBA-GEIGY Corporation. Agricultural Division. Environmental and Public Affairs Dept.) ; 92-9.). Cover title. At head of title: CIBA-GEIGY Corporation, Agricultural Group. Includes bibliographical references (p. 41-47).

Language: English

Descriptors: Pesticides; Agricultural pollution; Water

10

NAL Call. No.: 290.9 AM32P

BMP effectiveness evaluation using AGNPS and a GIS.

Hession, W.C.; Huber, K.L.; Mostaghimi, S.; Shanholtz, V.O.;

McClellan, P.W. St. Joseph, Mich. : The Society; 1989.

Paper - American Society of Agricultural Engineers (89-2566): 18 p.; 1989. Paper presented at the "1989 International Winter Meeting sponsored by the American Society of Agricultural Engineers," December 12-15, New Orleans, Louisiana. Includes references.

Language: English

Descriptors: Water quality; Watershed management; Hydrology; Simulation models

11

NAL Call. No.: 56.9 S03

Chisel tillage, furrow diking, and surface crust effects on infiltration. Baumhardt, R.L.; Wendt, C.W.; Keeling, J.W. Madison, Wis. : The Society; 1992 Jul. Soil Science Society of America journal v. 56 (4): p. 1286-1291; 1992 Jul. Includes references.

Language: English

Descriptors: Texas; Clay loam soils; Infiltration; Chiselling; Dikes; Furrows; Ponding; Rain; Impact; Kinetic energy; Surface layers; Crusts; Hydraulic conductivity; Water conservation

Abstract: Chisel tillage and furrow dikes (small earthen dams constructed in the furrow) are commonly used to increase infiltration and soil water storage in semiarid regions. Data quantifying the combined influences of these practices are limited. Our objective was to determine the effects of chisel tillage, furrow dikes (with and without ponding), and drop impact or surface crusts on infiltration. Infiltration rate (IR) and cumulative infiltration (CI) into an Olton day loam (fine, mixed, thermic Aridic Paleustoll) were measured by applying water at 65 and 80 mm h⁻¹ for 1 h using a rotating-disk-type rainfall simulator. Furrow dikes increased infiltration under both ponded and nonponded conditions. Cumulative infiltration was higher when raindrop impact energy was dissipated and, to some extent, when crusts were removed. Infiltration rate at the end of water application was lower with raindrop impact than when raindrop impact was eliminated; however, there were no differences in the final IR between the initially crusted and uncrusted soils. There were no differences in infiltration between chisel-disk and disk tillage measured during the mid growing season. Furrow dikes not only detain water on the surface to provide more time for infiltration, but also increase infiltration through increased hydraulic head and additional tillage performed during dike installation or by moving loose soil from the furrow into the dikes. Our data do not support using the same hydraulic-conductivity value for both diked and undiked field conditions, which may cause underestimation of conservation in furrow-diked fields.

12 NAL Call. No.: A281.9 AG8A
A comparison of tillage systems for reducing soil erosion and water pollution. Christensen, L.A.; Norris, P.E. Washington, D.C. : The Department; May 1983. Agricultural economic report - United States Dept. of Agriculture (499): 27 p.; May 1983. Available from NTIS, order no. PB83-209866. Includes 68 references.

Language: English

Descriptors: Tillage practices; Soil erosion; Soil conservation; Water pollution; Economic impact; Conservation practices; Yields; Trends

Abstract: Extract: Cropland in minimum tillage rose from 15.8

percent of all cropland in 1973 to 29.1 percent in 1981. The share for no-till rose from 2.0 to 2.9 percent during the same period. These conservation tillage systems--minimum tillage and no-till--can also reduce soil loss up to 99 percent over conventional tillage. This report looks at trends in the use of various tillage systems and compares their economic impacts and effects on soil and water conservation, crop yields, and pesticide and energy use, using selected results from studies of tillage systems.

13 NAL Call. No.: 290.9 AM32P
Computer-assisted analysis of best management practices.
Lanier, A.L.; Westerman, P.W.; Smolen, M.D.
St. Joseph, Mich. : The Society; 1989.
Paper - American Society of Agricultural Engineers (89-2531):
p. 151-166; 1989. Paper presented at the 1989 International
Winter Meeting of the American Society of Agricultural
Engineers, December 12-15, 1989, New Orleans, Louisiana.
Includes references.

Language: English

Descriptors: Water quality; Water management; Databases; Water
pollution

14 NAL Call. No.: S604.C66
Conservation impact a newsletter from the Conservation
Technology Information Center.
Conservation Technology Information Center
West Lafayette, IN : The Center, 1987-; 1987-9999.
v. : ill. ; 28 cm. Title from caption.

Language: English; English

Descriptors: Soil conservation; United States; Periodicals;
Water conservation; United States; Periodicals; Water quality;
United States; Periodicals; Agricultural conservation; United
States; Periodicals

15 NAL Call. No.: 56.8 J822
Conservation practice effects on phosphorus losses from
Southern Piedmont watersheds.
Langdale, G.W.; Leonard, R.A.; Thomas, A.W.
Ankeny, Iowa : Soil Conservation Society of America; 1985 Jan.
Journal of soil and water conservation v. 40 (1): p. 157-161;
1985 Jan. Includes 30 references.

Language: English

Descriptors: South eastern states of U.S.A.; Watersheds;
Tillage; Phosphorus; Runoff water; Soil and water
conservation; Water pollution

16

NAL Call. No.: S604.S7 1983

Conservation tillage effects on water conservation and runoff : project completion report.

Steichen, James M.; LaForce, Russell W.

United States, Dept. of the Interior, Kansas Water Resources Research Institute.

Manhattan, Kan. The Institute Springfield, Va. reproduced by National Technical Information Service; 1983.

iii, 22 leaves : ill. ; 28 cm.. (Contribution (Kansas Water Resources Research Institute) ; no. 226.). Project completion report for period October 1, 1979 to December 31, 1981.

Prepared for United States Department of the Interior.

"September 1982. "October 1982"--Cover. "PB83-139865".

Bibliography: leaf 21.

Language: English

Descriptors: Conservation tillage; Water conservation; Runoff

17

NAL Call. No.: S671.A66

Considerations for tile drainage-water quality studies in temperature regions. Milburn, P.; MacLeod, J.

St. Joseph, Mich. : American Society of Agricultural

Engineers; 1991 Mar. Applied engineering in agriculture v. 7

(2): p. 209-215; 1991 Mar. Includes references.

Language: English

Descriptors: Water quality; Drainage; Tile drainage; Temperate zones; Crop management; Discharge; Experimental design

Abstract: Experimental designs of 14 subsurface drainage-water quality studies conducted over the past 18 years are reviewed. To more accurately determine mass contaminant flux and processes, more intense monitoring of drain discharge rate and drainage water quality is needed than in most past studies. A recently installed field scale system of subsurface drainage-water quality plots and associated equipment, capable of intense, year round monitoring, is described and preliminary data showing performance of the system is presented. The material presented should be of interest to those planning and designing drainage-water quality studies, or refitting existing drainage installation for water quality investigations.

18

NAL Call. No.: HC59.S73 1988

Controlling toxic chemicals., 1st ed.

Postel, S.

New York : Norton; 1988.

State of the world, 1988 : a Worldwatch Institute report on progress toward a sustainable society / project director,

Lester R. Brown ; associate project director, Edward C. Wolf ; editor, Linda Starke. p. 118-136; 1988. Includes references.

Language: English

Descriptors: U.S.A.; Agricultural chemicals; Toxic substances; Technical progress; Pesticide side effects; Integrated pest management; Waste disposal; Adverse effects; Environmental pollution

19 NAL Call. No.: SD1.S63
Costs of protecting water quality during harvesting on private forestlands in the southeast.
Lickwar, P.; Hickman, C.; Cubbage, F.W.
Bethesda, Md. : Society of American Foresters; 1992 Feb.
Southern journal of applied forestry v. 16 (1): p. 13-20; 1992 Feb. Includes references.

Language: English

Descriptors: Alabama; Florida; Georgia; Harvesting; Logging; Water quality; Protection; Resource conservation; Economic analysis; Costs

Abstract: Data on harvest volumes, topography, and other site and area characteristics were obtained from 22 timber harvests in Alabama, Florida, and Georgia. An economic analysis was then used to estimate the marginal costs of implementing each state's recommended Best Management Practices (BMPs), as well as a set of enhanced BMPs on these sites. Considering all of the areas combined, the costs of using the recommended BMPs averaged 2.9% of gross timber sale revenue, \$2.34 per thousand board feet (mbf) of timber harvested, or \$12.45/ac. The cost of implementing the enhanced BMPs averaged 5.1% of gross stumpage value, \$4.13/mbf, or \$21.94/ac. Seed, fertilizer, and mulch, broad based ditches, and water bars were the most expensive practices on a total cost basis. Culvert installation, streamside management zones, and road relocation costs were less expensive for most tracts.

20 NAL Call. No.: HD1775.G4G43
Creams: a system for evaluating best management practices.
Knisel, W.G.; Foster, G.R.; Leonard, R.A.
Athens, Ga. : The Stations; 1983 Dec.
Special publication - University of Georgia, Agriculture Experiment Stations (23): p. 579-602; 1983 Dec. Paper presented at a symposium, Sept 21-26, 1980, Athens, Georgia. Literature review. Includes references.

Language: English

Descriptors: South eastern states of U.S.A.; South central states of U.S.A.; Computer software; Land management; Pollution by agriculture

21 NAL Call. No.: 64.9 C33
Dlouhodobá účinnost každoročního hnojení kejdou prasat v osevním postupu se 100% pícnin [Long-term effectiveness of

annual application of pig slurry to crop rotation of fodder crops].

Skarda, M.; Jokesova, J.

Praha : Ustav; 1985 Sep.

Rostlinna vyroba - Ceskoslovenska akademie zemedelska, Ustav vedeckotechnickych informaci pro zemedelstvi v. 31 (9): p.

921-934; 1985 Sep. Includes references.

Language: Czech

Descriptors: Fodder crops; Rotation; Pig slurry; Economic analysis

22

NAL Call. No.: HD156.B55

Economic costs and benefits of degradation and its repair. A. Issues in the economic evaluation of soil and water conservation programs. Seckler, D.

London : Methuen; 1987.

Land degradation and society / Piers Blaikie and Harold Brookfield with contributions by Bryant Allen ... [et al.].. p. 84-96; 1987. This record corrects IND87077735 which was entered incorrectly under call number HD6189.T97.

Language: English

Descriptors: Environmental degradation; Cost benefit analysis; Land productivity; Soil conservation; Water conservation; Program evaluation; Terraces

23

NAL Call. No.: HD6189.T97

Economic costs and benefits of degradation and its repair. A. Issues in the economic evaluation of soil and water conservation programs. Seckler, D.

New Delhi : Shakti Books; 1985.

Tyranny of the household : investigative essays on women's work / edited by Devaki Jain, Nirmala Banerjee. p. 84-96; 1985.

Language: English

Descriptors: Environmental degradation; Cost benefit analysis; Land productivity; Soil and water conservation; Program evaluation; Bench terraces

24

NAL Call. No.: 100 C12CAG

The economic effects of salinity and drainage problems.

Wichelns, D.; Howitt, R.E.; Horner, G.L.; Nelson, D.

Berkeley, Calif. : The Station; 1988 Jan.

California agriculture - California Agricultural Experiment Station v. 42 (1): p. 10-13. ill; 1988 Jan.

Language: English

Descriptors: California; Crop management; Salinity; Drainage;

High water tables; Economic impact; Yields; Acreage

25 NAL Call. No.: S95.E2
Economic impacts of agriculture technologies that affect water quality. Tauer, L.W.
Ithaca, N.Y. : New York Agric. Exp. Stations and New York State College of Agric. & Life Sciences; 1988.
New York's food and life sciences quarterly v. 18 (1/2): p. 27-28; 1988.

Language: English

Descriptors: U.S.A.; Pollution by agriculture; Water composition and quality; Economic impact; Minimum tillage systems; Multiple cropping

26 NAL Call. No.: TC401.A5
The economics of silvicultural best management practices. Dissmeyer, G.E.; Frandsen, E.
Bethesda, Md. : The Association; 1988 Nov.
American Water Resources Association technical publication series TPS (88-4): p. 77-86; 1988 Nov. In the series analytic: Nonpoint pollution: 1988--policy, economy, management, and appropriate technology / edited by V. Novotny. Includes references.

Language: English

Descriptors: U.S.A.; Forest resources; Land resources; Water resource management; Soil management; Forestry economics; Forest management; Water pollution; Control; Economic analysis

27 NAL Call. No.: 290.9 AM32P
Edge-of-field water quality impacts and costs of best management practices in Pennsylvania.
Hamlett, J.M.; Epp, D.J.
St. Joseph, Mich. : The Society; 1989.
Paper - American Society of Agricultural Engineers (89-2560): 29 p. maps; 1989. Paper presented at the "1989 International Winter Meeting sponsored by the American Society of Agricultural Engineers," December 12-15, New Orleans, Louisiana. Includes references.

Language: English

Descriptors: Pennsylvania; Soil conservation; Erosion control; Runoff; Percolation; Sediment

28 NAL Call. No.: TD428.A37T695 1989
The effect of best management practices on nitrogen transport into Chesapeake Bay.
Staver, K.; Brinsfield, R.; Stevenson, J.C.
Denver, Colo. : U.S. Committee on Irrigation and Drainage;

1989. Toxic substances in agricultural water supply and drainage : an int environ perspective : papers from the Second Pan-American Regional Conf of the Int Commission on Irrigation and Drainage, Ottawa, Canada, June 8-9, 1989. p. 163-179; 1989. Literature review. Includes references.

Language: English

Descriptors: Maryland; Water pollution; Coastal areas; Pollution by agriculture; Nitrogen; Leaching; Groundwater pollution; Losses from soil systems; Prevention

29 NAL Call. No.: S604.E35
Effect of conservation tillage on processes affecting nitrogen management. Schepers, J.S. Chelsea, Mich. : Lewis Publishers; 1987. Effects of conservation tillage on groundwater quality : nitrates and pesticides / edited by Terry J. Logan ... [et al.].. p. 241-250; 1987. Literature review. Includes references.

Language: English

Descriptors: Tillage; Nitrates; Leaching; Groundwater; Water composition and quality

30 NAL Call. No.: FICHE S-72
Effect of conservation tillage on runoff water quality: total, dissolved and algal-available phosphorus losses. Mueller, D.H.; Andraski, B.J.; Daniel, T.C.; Lowery, B. St. Joseph, Mich. : The Society; 1983. Paper - American Society of Agricultural Engineers (Microfiche collection) (fiche no. 83-2535): 1 microfiche : ill; 1983. Paper presented at the 1983 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

31 NAL Call. No.: FICHE S-72
Effect of land treatment upon flood flow. Chenoweth, J.W. St. Joseph, Mich. : The Society; 1986. American Society of Agricultural Engineers (Microfiche collection) (fiche no. 86-2017): 26 p. ill., maps; 1986. Paper presented at the 1986 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Iowa; Tillage; Soil conservation; Erosion control; Flood control

32 NAL Call. No.: 4 AM34P
Effect of standing small grain stubble on snow cover characteristics in alternate fallow strip cropping. Carprio, J.M.; Grunwald, G.K.; Snyder, R.D.; Cleary, E.C. Madison, Wis. : American Society of Agronomy; 1986 Jan. Agronomy journal v. 78 (1): p. 99-106. maps; 1986 Jan. Includes references.

Language: English

Descriptors: Montana; Plains; Triticum aestivum; Dry farming; Strip cropping; Water conservation; Stubble strips; Fallow; Snow cover; Meltwater; Meltwater; Soil water

33 NAL Call. No.: QH540.J6
Effect of surface application of polyvinyl alcohol on phosphorus losses in runoff and on corn growth. Marsh, M.H.; Groenevelt, P.H. Madison, Wis. : American Society of Agronomy; 1992 Jan. Journal of environmental quality v. 21 (1): p. 36-40; 1992 Jan. Includes references.

Language: English

Descriptors: Zea mays; Poly(vinyl alcohol); Phosphorus; Runoff; Losses from soil systems; Surface treatment; Mineral content; Nutrient content; Loam soils; Crop yield; Plant height; Erosion; Nutrient availability

Abstract: Phosphorus loading in surface water bodies due to runoff from cropland is a major concern with respect to water quality. Losses of water, soil, and different forms of P, from five runoff plots treated with polyvinyl alcohol (PVA), were compared to losses from five untreated plots. The plots were on a loam soil with 6.5 to 9.5% slopes. The effect of a single application of PVA was observed over 2 yr under natural rainfall. During the first year after application of PVA, runoff and soil losses were reduced by 56 and 80% respectively. Extractable P, total P, and dissolved molybdate-reactive P (DMRP) losses were reduced by 79, 75, and 64%, respectively. Corn (*Zea mays* L.) grain yield on the treated plots was 12% higher than on the control plots. All the above differences were statistically significant. During the second year, in which no tillage occurred and no PVA was applied, total P and DMRP losses were reduced by 42 and 40%, respectively, by the PVA treatment of the previous year. Although runoff and soil loss were lower for the treated plots, these differences were not significant at $P = 0.05$ (P values were 0.11 and 0.10, respectively).

34

NAL Call. No.: S544.3.W6W53

Effect of tillage on erosion, runoff and runoff water quality.
Daniel, T.C.; Mueller, D.H.; Andraski, B.J.; Springman, R.E.
Madison, Wis. : The Service; 1988.
Publication - University of Wisconsin, Cooperative Extension
Service (G3432): 5 p.; 1988. In subseries: Farm Management &
Water Quality.

Language: English

Descriptors: Conservation tillage; Erosion control; Runoff;
Water quality; Phosphorus; Water pollution; Manures

35

NAL Call. No.: FICHE S-72

Effect of tillage on infiltration and anion leaching.
Baker, J.L.; Kanwar, R.S.; Laflen, J.M.
St. Joseph, Mich. : The Society; 1986.
American Society of Agricultural Engineers (Microfiche
collection) (fiche no. 86-2544): 12 p.; 1986. Paper presented
at the 1986 Winter Meeting of the American Society of
Agricultural Engineers. Available for purchase from: The
American Society of Agricultural Engineers, Order Dept., 2950
Niles Road, St. Joseph, Michigan 49085. Telephone the Order
Dept. at (616) 429-0300 for information and prices. Includes
references.

Language: English

Descriptors: Soil conservation; Plowing; Minimum tillage
systems; Leaching; Nitrates; Groundwater pollution

36

NAL Call. No.: SB1.H6

Effect of tillage on the crop-water production function of
sweet corn in western Oregon.
Petersen, K.L.; Mack, H.J.; Cuenca, R.H.
Alexandria, Va. : American Society for Horticultural Science;
1985 Oct. HortScience v. 20 (5): p. 901-903; 1985 Oct.
Includes 10 references.

Language: English

Descriptors: Oregon; Zea mays; Evapotranspiration; Yields; Row
tillage; No-tillage systems

37

NAL Call. No.: QH540.J6

Effect of tillage systems and rainfall patterns on atrazine
distribution in soil.
Sadeghi, A.M.; Isensee, A.R.
Madison, Wis. : American Society of Agronomy; 1992 Jul.
Journal of environmental quality v. 21 (3): p. 464-469; 1992
Jul. Includes references.

Language: English

Descriptors: Maryland; Atrazine; Herbicide residues; Spatial variation; Spatial distribution; Tillage; No-tillage; Rhizosphere; Rain; Soil depth; Maize soils; Coastal plain soils

Abstract: High variability of atrazine (2-chloro-4-ethylamino-6-isopropylamino-1,3,5 triazine) residues in soil and shallow groundwater have been reported under various agricultural management systems. This 2-yr study was conducted to evaluate atrazine residue levels in soil as influenced by no-till (NT) vs. conventional-till (CT) under natural rainfall conditions. Atrazine was applied annually (at 1.34 kg/ha), 1 d after corn (*Zea mays* L.) planting, to two NT and two CT plots. Atrazine residues within the 0- to 10-cm soil depth of CT plots were higher than in the NT plots, regardless of the difference in the rainfall patterns. Higher (ca. 61%) mean atrazine residues in the CT plots over NT plots in 1988 was most likely related to the rainfall that began 12 h after application. In contrast, in 1987, it rained 3 to 4 d after application and the residues in the CT were only 31% higher than in NT. These results indicate that even a subtle difference in rainfall distribution (temporal) can result in marked spatial variability in the distribution of atrazine.

38

NAL Call. No.: S494.5.W3A3

Effect of upland pasture improvement on nutrient release in flows from a 'natural' lysimeter and a field drain.

Roberts, G.; Hudson, J.A.; Blackie, J.R.

Amsterdam : Elsevier Scientific; 1986 Sep.

Agricultural water management v. 11 (3/4): p. 231-245. maps; 1986 Sep. Includes references.

Language: English

Descriptors: United Kingdom; Pastures; Grassland improvement; Upland areas; Fertilizer application; Runoff; Pollution by agriculture; Water composition and quality; Lysimeters; Drainage; Flow; Nutrients; Losses from soil systems; Land use; Tillage

39

NAL Call. No.: FICHE S-72

Effectiveness and impacts of agricultural best management practices: a systems approach.

Heatwole, C.D.; Dillaha, T.A.; Mostaghimi, S.; Kramer, R.A.

St. Joseph, Mich. : The Society; 1988.

American Society of Agricultural Engineers (Microfiche collection) (fiche no. 88-2037): 13 p.; 1988. Paper presented at the 1988 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Environmental pollution; Surface water;
Groundwater; Water composition and quality; Soil conservation;
Plant production; Farm management; Systems approach

40 NAL Call. No.: TD223.N36 1992

Effectiveness of agricultural best management practices implemented in the Taylor Creek/Nubbin Slough watershed and the Lower Kissimmee River Basin. Gunsalus, B.; Flaig, E.G.; Ritter, G.
Washington, DC : U.S. Environmental Protection Agency; 1992.
Proceedings: the National RCWP Symposium : 10 years of controlling agricultural nonpoint source pollution : the RCWP experience : Sept 13-17, 1992, Orlando, Florida. p. 161-171; 1992. Includes references.

Language: English

Descriptors: Florida; Water management; Water quality; Water pollution; Pollution control

41 NAL Call. No.: aSD433.A53

The effectiveness of silvicultural nonpoint source control programs for several Southern states.
Ice, G.G.
Asheville, N.C. : The Station; 1989 Jan.
General technical report SE - U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station (50): p. 163-168. maps; 1989 Jan. Paper presented at a "Symposium on the Forested Wetlands of the Southern United States," July 12-14, 1988, Orlando, Florida. Includes references.

Language: English

Descriptors: South eastern states of U.S.A.; Water pollution; Silviculture; Wetlands; Legislation

42 NAL Call. No.: TD930.I57 1985

Effects of a settling basin and tiled infiltration bed on runoff from a paved feedlot.
Edwards, W.M.; Owens, L.B.; White, R.K.; Fausey, N.R.
St. Joseph, Mich. : American Society of Agricultural Engineers; 1985. Agricultural waste utilization and management : proceedings of the Fifth International Symposium on Agricultural Wastes, December 16-17, 1985, Hyatt Regency Chicago, Illinois Center, Chicago, Illinois. p. 737-744. ill; 1985. (ASAE publication ; 13-85). Includes references.

Language: English

Descriptors: U.S.A.; Humid zones; Feedlot effluent; Feedlot wastes; Runoff control; Infiltration; Tiles; Hydrology;

Discharges; Chemical analysis

43 NAL Call. No.: FICHE S-72
Effects of agricultural best management practices on ground water in Maryland: study design.
McFarland, E.R.
St. Joseph, Mich. : The Society; 1987.
American Society of Agricultural Engineers (Microfiche collection) (fiche no. 87-2103): 14 p. maps; 1987. Paper presented at the 1987 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Maryland; Groundwater; Hydrology; Water composition and quality; Groundwater pollution; Agricultural production

44 NAL Call. No.: S604.E35
Effects of conservation tillage on groundwater quality nitrates and pesticides.
Logan, Terry James,
Chelsea, Mich. : Lewis Publishers,; 1987.
xviii, 292 p. : ill. ; 24 cm. Includes bibliographies and index.

Language: English

Descriptors: Conservation tillage; Environmental aspects; Water, Underground; Quality; Nitrates; Environmental aspects; Pesticides; Environmental aspects

45 NAL Call. No.: QK867.J67
Effects of different management practices on surface water quality from rice fields in south Louisiana.
Feagley, S.E.; Sigua, G.C.; Bengtson, R.L.; Bollich, P.K.; Linscombe, S.D. New York, N.Y. : Marcel Dekker; 1992.
Journal of plant nutrition v. 15 (8): p. 1305-1321; 1992.
Includes references.

Language: English

Descriptors: Louisiana; Flooded rice; Fields; Water quality; Mineral content; Nutrient content; Pesticide residues; Surface water; Water management; Cultivation; Flood irrigation; Sediment

Abstract: Water samples collected in the Mermentau River Basin over several years at Louisiana Department of Environmental Quality monitoring sites contained high levels

of total solids and nutrients during the spring that were highly correlated to pre- and post-plant discharges from rice fields. This study was developed to evaluate the potential of selected management practices (MP's) for reducing total solids, nutrients and pesticides from discharge water in order to improve the surface water quality in southwest Louisiana. Five rice plots located on the Rice Research Station in Crowley, LA represented the different MP's to be evaluated. The five water seeding MP's were: a.1-no till; a.2-water cultivation with 30-day settling, a.3-dry cultivation with clear water planting; a.4-mudding-in with vegetated filter, and b-mudding-in (control). Quality of discharged water from rice fields in the Mermentau River Basin was clearly affected by the different MP's. From the first year of data, all the MPa's were better than the mudding-in (MPb). The concentrations of the total solids (kg/ha) in the discharged water (initial + final drain) for the different MP's were in the order: MPb(4860) > MPa.3(3906) > MPa.4(3412) > MPa.2(3068) > MPa.1(1807). The Mpa.3, Mpa.4 and MPb had no detectable amounts of pesticides being released. The 30-day holding period (Mpa.2), clear water planting (MPa.3) and the mudding-in with vegetated filter (MPa.4) were similar as far as TDS, TSS and TS with the no-till (MPa.1) being the least. The 30-day holding period (Mpa.2) and the no-till (MPa.1) had less nutrients, but more pesticides released. Depending on the priority of the stream problems, different MP's may be more advantageous than others. All of the selected MP's were better than the control (MPb), and therefore, should help to improve water quality.

46

NAL Call. No.: 290.9 AM32T

Effects of manure management and building environments on swine health and productivity.

Sutton, A.L.; Malayer, J.R.; Diekman, M.A.; Kelly, D.T.; Jones, D.D.; Long, G.G.

St. Joseph, Mich. : The Society; 1987 Nov.

Transactions of the ASAE - American Society of Agricultural Engineers v. 30 (6): p. 1764-1771. ill; 1987 Nov. Includes references.

Language: English

Descriptors: Gilts; Pig housing; Pig slurry; Waste disposal; Environmental factors; Ventilation

47

NAL Call. No.: TD403.G7

Effects of nutrient management on nitrate levels in ground water near Ephrata, Pennsylvania.

Hall, D.W.

Dublin, Ohio : Ground Water Pub. Co; 1992 Sep.

Ground water v. 30 (5): p. 720-730; 1992 Sep. Includes references.

Language: English

Descriptors: Pennsylvania; Agricultural land; Manures;
Fertilizers; Application; Groundwater; Water quality;
Application rates; Nitrates; Concentration; Surface water;
Runoff; Wells; Aquifers; Groundwater recharge

48 NAL Call. No.: TD223.N36 1992
Effects of nutrient management on nitrogen flux through a
karst aquifer Conestoga River Headwaters Basin, Pennsylvania.
Hall, D.W.; Risser, D.W.
Washington, DC : U.S. Environmental Protection Agency; 1992.
Proceedings: the National RCWP Symposium : 10 years of
controlling agricultural nonpoint source pollution : the RCWP
experience : Sept 13-17, 1992, Orlando, Florida. p. 115-130;
1992. Includes references.

Language: English

Descriptors: Pennsylvania; Water management; Nutrients; Water
quality; Groundwater; Pollution control

49 NAL Call. No.: TD223.N36 1992
Effects of nutrient management on surface water quality in a
small watershed in Pennsylvania.
Koerkle, E.H.
Washington, DC : U.S. Environmental Protection Agency; 1992.
Proceedings: the National RCWP Symposium : 10 years of
controlling agricultural nonpoint source pollution : the RCWP
experience : Sept 13-17, 1992, Orlando, Florida. p. 193-207;
1992. Includes references.

Language: English

Descriptors: Pennsylvania; Watersheds; Nutrients; Water
management; Water quality

50 NAL Call. No.: TD403.G7
Effects of pipe-outlet terracing on ground-water quantity near
Churchtown, Pennsylvania.
Hall, D.W.
Dublin, Ohio : Ground Water Pub. Co; 1993 Jan.
Ground water v. 31 (1): p. 41-49; 1993 Jan. Includes
references.

Language: English

Descriptors: Pennsylvania; Groundwater recharge; Aquifers;
Farmland; Terracing; Water table

51 NAL Call. No.: TD223.N36 1992
Effects of pipe-outlet terracing on runoff water quantity and
quality at an agricultural field site, Conestoga River
headwaters, Pennsylvania. Lietman, P.L.
Washington, DC : U.S. Environmental Protection Agency; 1992.

Proceedings: the National RCWP Symposium : 10 years of
controlling agricultural nonpoint source pollution : the RCWP
experience : Sept 13-17, 1992, Orlando, Florida. p. 97-113;
1992. Includes references.

Language: English

Descriptors: Pennsylvania; Runoff water; Terraces; Water
quality; Monitoring

52 NAL Call. No.: FICHE S-72
Effects of residue cover on pesticide losses from conventional
and no-tillage systems.
Kenimer, A.L.; Mostaghimi, S.; Young, R.W.; Dillaha, T.A.;
Shanholtz, V.O. St. Joseph, Mich. : The Society; 1986.
American Society of Agricultural Engineers (Microfiche
collection) (fiche no. 86-2541): 23 p.; 1986. Paper presented
at the 1986 Winter Meeting of the American Society of
Agricultural Engineers. Available for purchase from: The
American Society of Agricultural Engineers, Order Dept., 2950
Niles Road, St. Joseph, Michigan 49085. Telephone the Order
Dept. at (616) 429-0300 for information and prices. Includes
references.

Language: English

Descriptors: Atrazine; 2,4-d; Losses; Minimum tillage systems;
Crop residues; Rainfall simulators; Runoff water; Water
composition and quality

53 NAL Call. No.: S539.5.A77
Effects of risk perceptions and other characteristics of
farmers and farm operations on the adoption of conservation
tillage practices. Shortle, J.S.; Miranowski, J.A.
New York : Springer; 1986.
Applied agricultural research v. 1 (2): p. 85-90; 1986.
Includes references.

Language: English

Descriptors: Farm management; Risks; Tillage; Water pollution

54 NAL Call. No.: 292.9 AM34
Effects of sludge and chemical fertilizer application on
runoff water quality. Mostaghimi, S.; Younos, T.M.; Tim, U.S.
Bethesda, Md. : American Water Resources Association; 1992
May. Water resources bulletin v. 28 (3): p. 545-552; 1992 May.
Includes references.

Language: English

Descriptors: Virginia; Sludges; Nitrogen fertilizers;
Phosphorus fertilizers; Application to land; No-tillage;
Tillage; Nitrogen; Phosphorus; Losses from soil systems;

Runoff water; Water quality; Sediment

Abstract: Simulated rainfall was used on experimental field plots to compare the effect of chemical fertilizer and sludge application on sediment, nitrogen, and phosphorus in runoff from no-till and conventional tillage systems. Chemical fertilizer application under the no-till system resulted in the least amount of total N and P in surface runoff. However, sludge application under the no-till system resulted in the least amount of NO₃-N and sediment in surface runoff. The worst water quality scenarios were observed when either sludge or chemical fertilizer were surface-applied under a conventional tillage system. Nitrogen losses from the conventional tillage system were minimized when sludge was incorporated into the soil. However, phosphorus and sediment yield from such a system were significantly higher when compared to phosphorus and sediment yield from the no-till system. The results from this study indicate that the use of sludge on agricultural land under a no-till system can be a viable alternative to chemical fertilizer for nitrogen and phosphorus control in runoff. A more cautious approach is recommended when the sludge is incorporated into the soil in a conventional tillage system because of potential for high sediment and phosphorus yield in surface runoff.

55

NAL Call. No.: HD1773.A3N6

Effects of soil and agricultural chemicals management on farm returns and ground water quality.

Setia, P.; Piper, S.

East Lansing, Mich. : Michigan State University; 1992 Jan.

Review of agricultural economics v. 14 (1): p. 65-80; 1992 Jan. Includes references.

Language: English

Descriptors: Corn belt of U.S.A.; Maize; Soybeans; Pesticides; Agricultural chemicals; Soil management; Groundwater; Water quality; Leaching; Returns; Tillage; Federal programs; Conservation

Abstract: Economic and physical simulation models were utilized to evaluate the effect of alternative soil and agricultural chemical management systems, implemented under the Conservation Reserve and Conservation Compliance Programs, on pesticides' leaching, and returns to fixed farm resources. Findings of the study show that the selection of appropriate soil and chemical systems may not only increase farm returns but may also result in a significant reduction in leaching and hence ground water degradation.

56

NAL Call. No.: S591.55.K4S64

Effects of tillage and grass filter strips on surface runoff of water, nitrate, sediment, and atrazine.

Madison, C.E.; Blevins, R.L.; Frye, W.W.

Lexington, Ky. : The Department; 1992.

Soil science news & views - Cooperative Extension Service and University of Kentucky, College of Agriculture, Department of Agronomy v. 13 (5): 4 p.; 1992.

Language: English

Descriptors: Runoff; Agricultural chemicals; Sediment; Farmland; No-tillage; Conservation tillage; Grass strips; Soil conservation; Filtration; Water conservation; Erosion control; Water pollution

57 NAL Call. No.: S604.S6 1985
Effects of tillage on quality of runoff water.
Baldwin, P.L.; Frye, W.W.; Blevins, R.L.
Athens, Ga. : Agricultural Experiment Stations, University of Georgia, [1985?]; 1985.
Proceedings of the 1985 Southern Region No-Till Conference : July 16-17, 1985, Griffin, Georgia / edited by W.L. Hargrove and F.C. Boswell and G.W. Langdale. p. 169-174; 1985.
Includes references.

Language: English

Descriptors: Tillage; Runoff water; Water composition and quality; Silty soils; Loam soils

58 NAL Call. No.: 290.9 AM32P
Effects of tillage on the preferential movement of pesticides.
Gish, T.J.; Isensee, A.R.; Nash, R.G.; Helling, C.S.
St. Joseph, Mich. : The Society; 1989.
Paper - American Society of Agricultural Engineers (89-2505): 13 p.; 1989. Paper presented at the 1989 International Winter Meeting of the American Society of Agricultural Engineers, December 12-15, 1989, New Orleans, Louisiana. Includes references.

Language: English

Descriptors: Groundwater; Water quality; Pesticides; Tillage

59 NAL Call. No.: S671.A22
Effects on water quality.
Ames, Iowa : The Service; 1990 Nov.
AE - Iowa State University, Cooperative Extension Service (3051): 3 p.; 1990 Nov. In subseries: Conservation Tillage.
Includes references.

Language: English

Descriptors: Iowa; Conservation tillage; Sediment; Agricultural chemicals; Runoff water; Groundwater; Water quality

60

NAL Call. No.: S539.5.J68

Environmental and economic impacts of pesticide and irrigation practices: EPIC-PST simulation.

Sabbagh, G.J.; Norris, P.E.; Geleta, S.; Bernado, D.J.;

Elliott, R.L.; Mapp, H.P.; Stone, J.F.

Madison, Wis. : American Society of Agronomy; 1992 Jul.

Journal of production agriculture v. 5 (3): p. 312-317; 1992

Jul. Includes references.

Language: English

Descriptors: Oklahoma; Groundwater pollution; Crop management;

Environmental impact; Economic impact; Pest control;

Irrigation; Computer techniques; Simulation models;

Pesticides; Movement in soil; Runoff

61

NAL Call. No.: SB610.M65

Environmental effects of limited tillage.

Wauchope, R.D.; McDowell, L.L.; Hagen, L.J.

Champaign, Il. : Weed Science Society of America; 1985.

Monograph series of the Weed Science Society of America (2):

p. 266-281; 1985. Literature review. Includes references.

Language: English

Descriptors: Minimum tillage systems; Water pollution; Air

pollution; Erosion; Pesticide residues; Weed control

62

NAL Call. No.: S544.3.N6N62

Environmental impacts of conservation tillage.

Cook, M.G.

Raleigh, N.C. : The Service; 1989 Jan.

AG - North Carolina Agricultural Extension Service, North

Carolina State University (407): p. 51-55; 1989 Jan. In

series analytic: Conservation Tillage for Crop Production in

North Carolina, edited by M.G. Cook and W.M. Lewis.

Language: English

Descriptors: North Carolina; Tillage; Soil and water

conservation; Pesticide residues; Groundwater pollution;

Denitrification; Nature conservation; Spraying precautions

63

NAL Call. No.: S604.S87

Environmental implications of conservation tillage: a systems

approach. Bailey, G.W.; Mulkey, L.A.; Swank, R.R. Jr

Chelsea, Mich. : Lewis Publishers; 1985.

A Systems approach to conservation tillage / edited by Frank

M. D'Itri. p. 239-265; 1985. Includes references.

Language: English

Descriptors: Tillage; Pollution by agriculture; Pesticides;

Systems analysis

64

NAL Call. No.: 280.8 J822

Environmental quality constraints and farm-level decision making. Turvey, C.G.

Ames, Iowa : American Agricultural Economics Association; 1991 Dec. American journal of agricultural economics v. 73 (5): p. 1399-1409; 1991 Dec. Paper presented at the annual meetings of the American Agricultural Economics Association, August 4-7, 1991, Manhattan, Kansas. Discussions by C.B. Moss, p. 1405-1406 and N.E. Harl, p. 1407-1409. Includes references.

Language: English

Descriptors: Ontario; Surface water; Watersheds; Soil compaction; Farm management; Regulations; Environmental impact; Profitability; Costs; Constraints; Rain; Liabilities; Externalities; Decision making

65

NAL Call. No.: S583.2.A374

Environmental significance of minimum-tillage.

Thomas, G.W.

Totowa, N.J. : Rowman & Allanheld; 1985.

Agricultural chemicals of the future : invited papers presented at a symposium held May 16-19, 1983, at the Beltsville Agricultural Research Center (BARC), Beltsville, Maryland / James L. Hilton, edit. p. 411-423; 1985. (Beltsville symposia in agricultural research ; 8). Includes references.

Language: English

Descriptors: U.S.A.; Minimum tillage systems; Herbicides; Environmental assessment; Erosion control; Runoff; Leaching; Pollution

66

NAL Call. No.: 56.8 J822

Erosion, sediment, and economic effects of conservation compliance in an agricultural watershed.

Prato, T.; Wu, S.

Ankeny, Iowa : Soil and Water Conservation Society of America; 1991 May. Journal of soil and water conservation v. 46 (3): p. 211-214; 1991 May. Includes references.

Language: English

Descriptors: Idaho; Watershed management; Erosion control; Sediment; Tillage; Conservation tillage; Rotations; Contour ridging

67

NAL Call. No.: HD1750.W4

Estimated economic impact from adoption of water-related agricultural technology.

Ellis, J.R.; Lacewell, R.D.; Reneau, D.R.

Lincoln, Neb. : Western Agricultural Economics Association;
1985 Dec. Western journal of agricultural economics v. 10 (2):
p. 307-321; 1985 Dec. Literature review. Includes 33
references.

Language: English

Descriptors: Economic impact; Water use; Technology;
Groundwater; Irrigation systems; Tillage

68 NAL Call. No.: TD223.N36 1992
Estimation of lag time for water quality response to BMPs.
Clausen, J.C.; Meals, D.W.; Cassell, E.A.
Washington, DC : U.S. Environmental Protection Agency; 1992.
Proceedings: the National RCWP Symposium : 10 years of
controlling agricultural nonpoint source pollution : the RCWP
experience : Sept 13-17, 1992, Orlando, Florida. p. 173-179;
1992. Includes references.

Language: English

Descriptors: Vermont; Water quality; Watersheds; Watershed
management

69 NAL Call. No.: 100 Or3M no. 817
Evaluating coliform concentrations in runoff from various
animal waste management systems.
Moore, James A.
Corvallis, Or. : Agricultural Experiment Stations, Oregon
State University,; 1988.
iii, 80 p. : ill. ; 28 cm. (Special report / Oregon State
University. Agricultural Experiment Station ; 817). "January
1988"--Cover. Bibliography: p. 67-80.

Language: English

70 NAL Call. No.: TD428.A37E9
Evaluating nutrient and sediment losses from agricultural
lands vegetative filter strips.
Dillaha, T. A.
United States, Environmental Protection Agency, Chesapeake Bay
Program, Virginia Polytechnic Institute and State University,
Dept. of Agricultural Engineering, Virginia Agricultural
Experiment Station, Virginia Polytechnic Institute and State
University, Dept. of Agronomy
Annapolis, MD : U.S. Environmental Protection Agency, Region
III, Chesapeake Bay Liaison Office,; 1987.
xi, 93 p. : ill., form ; 28 cm. (CBP/TRS ; 4/87). Project
number X-00315-01-0. This study was conducted in cooperation
with the Virginia Polytechnic Institute and State University
Departments of Agricultural Engineering and Agronomy and the
Virginia Agricultural Experiment Station. "Chesapeake Bay
Program"--Cover. Includes bibliographical references (p.
67-70).

Language: English

Descriptors: Agricultural pollution; Water; Sediment transport; Feedlot runoff

71 NAL Call. No.: TD428.A37A36 1983
Evaluating the effectiveness of BMPs (Best Management Practices) from field studies (Controlling water quality problems).
Baker, J.L.; Johnson, H.P.
Ames : Iowa State University Press, 1983; 1983.
Agricultural management and water quality / edited by F.W. Schaller, G.W. Bailey. p. 281-304; 1983. Includes references.

Language: English

72 NAL Call. No.: 292.9 AM34
Evaluation of best management practices for controlling nonpoint pollution from silvicultural operations.
Lynch, J.A.; Corbett, E.S.
Minneapolis, Minn. : American Water Resources Association; 1990 Feb. Water resources bulletin v. 26 (1): p. 41-52; 1990 Feb. Includes references.

Language: English

Descriptors: Forest management; Water pollution; Water composition and quality; Clearcutting; Silviculture

73 NAL Call. No.: 58.8 C164
Evaluation of best management practices to control phosphorus nonpoint source pollution.
Rousseau, A.; Dickinson, W.T.; Rudra, R.P.
Ottawa : Canadian Society of Agricultural Engineering; 1987 Jul. Canadian agricultural engineering v. 29 (2): p. 163-168. maps; 1987 Jul. Includes references.

Language: English

Descriptors: Ontario; Water pollution; Pollution by agriculture; Phosphorus fertilizers; Crop management; Microwatersheds; Erosion control

74 NAL Call. No.: 292.9 AM34
Evaluation of management practices to control agricultural pollutants. McTernan, W.F.; Weand, B.L.; Grizzard, T.J.
Minneapolis, Minn. : American Water Resources Association; 1987 Aug. Water resources bulletin v. 23 (4): p. 691-700. ill., maps; 1987 Aug. Includes references.

Language: English

Descriptors: Virginia; Watersheds; Pollution by agriculture;
Land use; Minimum tillage systems; Crop management;
Mathematical models; Water pollution; Runoff; Agricultural
land

75 NAL Call. No.: QH540.J6
Evaluation of nitrogen availability indexes for a sludge
compost amended soil. O'Keefe, B.E.; Axley, J.; Meisinger,
J.J.
Madison, Wis. : American Society of Agronomy; 1986 Apr.
Journal of environmental quality v. 15 (2): p. 121-128; 1986
Apr. Includes references.

Language: English

Descriptors: Sewage sludge; Soil amendments; Nitrogen;
Nutrient availability; Zea mays; Nutrient uptake; Soil testing

76 NAL Call. No.: TD427.P56E92 1989
An Evaluation of the cost effectiveness of agricultural best
management practices and publicly owned treatment works in
controlling phosphorus pollution in the Great Lakes basin.,
Rev. February 1989.. United States, Environmental Protection
Agency, Development Planning & Research Associates
Manhattan, Kan. : DPRA Inc.,; 1989.
1 v. (various foliations) : ill. ; 28 cm. Contract no.
68-01-7047. Includes bibliographical references.

Language: English

Descriptors: Water

77 NAL Call. No.: S590.C63
Evaluation of various nitrogen sources and rates on nitrogen
movement, Pensacola bahiagrass production, and water quality.
Sveda, R.; Rechcigl, J.E.; Nkedi-Kizza, P.
New York, N.Y. : Marcel Dekker; 1992.
Communications in soil science and plant analysis v. 23
(17/20): p. 2451-2478; 1992. In the Special Issue:
International symposium on soil testing and plant analysis in
the global community. Paper presented at the second
international symposium, August 22-27, 1991, Orlando, Florida.
Includes references.

Language: English

Descriptors: Florida; Paspalum notatum; Ammonium sulfate;
Ammonium nitrate; Application rates; Nitrogen; Movement in
soil; Crop production; Nutrient content; Plant tissues; Water
quality

78 NAL Call. No.: SB317.5.A6
Evaluering van bewaringsbewerkingpraktyke vir 'n braak-

koringstelsel in die sentrale Vrystaat [Evaluation of conservation tillage practices for a fallow-wheat system in the central Free State].

Snyman, P.J.; Engelbrecht, C.; Van Der Merwe, S.W.J.
Sunnyside : South African Weed Science Society; 1992.
Applied plant science; Toegepaste plantwetenskap v. 6 (2): p. 65-68; 1992. Includes references.

Language: Afrikaans

Descriptors: South Africa; Triticum; Conservation tillage;
Crop residues; Crop yield; Fallow; Infiltration; Water
conservation

79

NAL Call. No.: TD426.J68

A field study of the effects of soil structure and irrigation method on preferential flow of pesticides in unsaturated soil.
Ghodrati, M.; Jury, W.A.

Amsterdam : Elsevier; 1992 Oct.

Journal of contaminant hydrology v. 11 (1/2): p. 101-125; 1992 Oct. Includes references.

Language: English

Descriptors: California; Soil pollution; Pesticides;
Formulations; Movement in soil; Irrigation; Soil water
regimes; Tillage; Sandy loam soils

80

NAL Call. No.: 290.9 AM32P

A field system to monitor tillage and crop rotation effects on groundwater quality.

Kanwar, R.S.; Baker, D.G.; Singh, P.; Noh, K.M.

St. Joseph, Mich. : The Society; 1990.

Paper - American Society of Agricultural Engineers (90-2526):
10 p.; 1990. Paper presented at the "1990 International Winter Meeting," December 18-21, 1990, Chicago, Illinois. Includes references.

Language: English

Descriptors: Groundwater; Water quality; Tillage; Rotations

81

NAL Call. No.: TD171.U5

A "fitting solution" at Snake Creek, Utah.

Wann, D.

Washington, D.C. : Office of Public Awareness; 1986 May.

EPA Environmental Protection Agency journal v. 12 (4): p. 15-16; 1986 May.

Language: English

Descriptors: Utah; Water pollution; Pollution by agriculture;
Phosphorus residual effect; Irrigation; Water management;
Environmental impact reporting

82

NAL Call. No.: FICHE S-72

Ground water models for assessing agricultural best management practice. Shoemaker, L.L.; Magette, W.L. St. Joseph, Mich. : The Society; 1987. American Society of Agricultural Engineers (Microfiche collection) (fiche no. 87-2021): 13 p.; 1987. Paper presented at the 1987 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Models; Groundwater pollution; Fertilizer application; Pesticide application; Leaching

83

NAL Call. No.: S590.C63

Ground water nonpoint source management in Nebraska. Link, M. New York, N.Y. : Marcel Dekker; 1992. Communications in soil science and plant analysis v. 23 (17/20): p. 2135-2150; 1992. In the Special Issue: International symposium on soil testing and plant analysis in the global community. Paper presented at the second international symposium, August 22-27, 1991, Orlando, Florida. Includes references.

Language: English

Descriptors: Nebraska; Groundwater pollution; Programs; State government; Water quality; Nitrate; Contamination

84

NAL Call. No.: QK867.J67

Growth and selenium uptake of range plants propagated in uranium mine soils. Hossner, L.R.; Woodard, H.J.; Bush, J. New York, N.Y. : Marcel Dekker; 1992. Journal of plant nutrition v. 15 (12): p. 2743-2761; 1992. Includes references.

Language: English

Descriptors: Texas; Panicum coloratum; Cynodon dactylon; Gramineae; Selenium; Ion uptake; Mineral content; Uranium; Mine spoil; Shoots; Dry matter accumulation; Cover crops

Abstract: High soil selenium (Se) levels have been found in association with uranium deposits in Texas. A concern that high Se concentrations may be found in forages grown on reclaimed mine lands prompted this investigation. A native soil sampled near the mining area, and overburden materials sampled from two Se enriched uranium mine soil sites were

compared in a plant growth study in the greenhouse. Shoot yields and shoot Se concentration in each of ten grasses common to the region were determined from plants harvested three weeks after germination and from shoot regrowth harvested four weeks after the first harvest. Shoot weights were reduced for 5 of the 10 species growing in soils with medium and high Se status. Total shoot weights of *Cynodon dactylon* and *Panicum coloratum* from two harvests were consistently highest in all soil materials and are highly recommended for use as a stabilizing cover crop for lands disturbed from uranium mining. Generally, no correlation was observed between shoot weight and plant Se concentration or uptake in the 10 species. However, plant tissue Se concentrations in all species for at least one of the two harvest dates were above the 5 mg kg⁻¹ concentration considered potentially harmful to grazing livestock. Therefore, none of these species would be a suitable forage for livestock grazing on reclaimed Se-enriched uranium mining overburden.

85 NAL Call. No.: QH540.J6
Herbicide residues from winter wheat plots: effect of tillage and crop management.
Brown, D.F.; McCool, D.K.; Papendick, R.L.; McDonough, L.M.
Madison, Wis. : American Society of Agronomy; 1985 Oct.
Journal of environmental quality v. 14 (4): p. 521-532; 1985 Oct. Includes references.

Language: English

Descriptors: Washington; *Triticum aestivum*; *Pisum sativum*; Metribuzin; Bromoxynil; Residual effects; Soil pollution; Runoff; Tillage; Crop management; Winter; Erosion

86 NAL Call. No.: SB951.4.E58
Herbicides in surface waters.
Leonard, R.A.
Boca Raton, Fla. : CRC Press; 1988.
Environmental chemistry of herbicides / editor, R. Grover. v. 1 p. 45-87. ill; 1988. Literature review. Includes references.

Language: English

Descriptors: Herbicides; Surface water; Runoff water; Transport; Distribution; Persistence; Erosion control; Soil conservation; Tillage; Simulation models; Prediction

87 NAL Call. No.: S604.E35
Hydrologic effects of conservation tillage and their importance relative to water quality.
Baker, J.L.
Chelsea, Mich. : Lewis Publishers; 1987.
Effects of conservation tillage on groundwater quality :

nitrates and pesticides / edited by Terry J. Logan ... [et al.].. p. 113-124; 1987. Literature review. Includes references.

Language: English

Descriptors: Tillage; Water composition and quality; Hydrology

88 NAL Call. No.: 292.2 AM34
Hydrological response of an agricultural watershed to various hydrologic and management conditions.
Razavian, D.
Minneapolis, Minn. : American Water Resources Association.
Water resources bulletin v. 26 (5): p. 777-785. maps; 1990 Oct. Includes references.

Language: English

Descriptors: Nebraska; Watersheds; Agricultural land; Pollution; Tillage; Erosion; Sediment yield; Runoff; Catchment hydrology; Climatic factors; Crops management; Simulation models

89 NAL Call. No.: 292.8 W295
Hydrological impacts of changing land management practices in a moderate-sized agricultural catchment.
Potter, K.W.
Washington, D.C. : American Geophysical Union; 1991 May.
Water resources research v. 27 (5): p. 845-855; 1991 May. Includes references.

Language: English

Descriptors: Wisconsin; Stream flow; Catchment hydrology; Conservation tillage; Agricultural land; Land management; Land use; Soil conservation; Erosion; Runoff; Floods; Precipitation; Seasonal variation

Abstract: Since the mid-1930s a variety of soil conservation practices have been applied to agricultural lands throughout the United States. While intended to reduce soil erosion, if effective, these practices should alter the hydrology of streams which drain the treated lands. This hypothesis was explored for the East Branch of the Pecatonica River, a gaged 221 square mile agricultural catchment in southwestern Wisconsin. On the basis of the analysis of peak and daily flow data there has been a decrease in flood peaks and in winter/spring flood volumes and an increase in hydrologic rise times and in the contribution of winter/spring snowmelt events to base flow. These changes do not appear to be due to climatic variations, reservoir construction, or major land use changes. Instead, they appear to have resulted from the adoption of various soil conservation practices, particularly those involving the treatment of gullies and the adoption of conservation tillage.

90

NAL Call. No.: GB701.W375 no.91-4006

Hydrology and the hypothetical effects of reducing nutrient applications of water quality in the Bald Eagle Creek Headwaters, southeastern Pennsylvania prior to implementation of agricultural best-management practices. Fishel, David K.; Langland, Michael J.; Truhlar, Mark V. Susquehanna River Basin Commission, Pennsylvania, Dept. of Environmental Resources, Pennsylvania, Bureau of Soil and Water Conservation, Geological Survey (U.S.), United States, Environmental Protection Agency, Chesapeake Bay Program Lemoyne, Pa. : U.S. Geological Survey ; Denver, Colo. : Books and Open-File Reports Section [distributor], ; 1991. vi, 59 p. : ill. ; 28 cm. (Water-resources investigations report ; 91-4006). Water-Quality Study for the Chesapeake Bay Program. Includes bibliographical references (p. 57-59).

Language: English

Descriptors: Stream measurements; Water quality; Fertilizers; Hydrology

91

NAL Call. No.: 282.9 G7992

The impact of agriculture on water quality in the Great Plains. Butters, G.; Hickman, J.; Van Schilfgaarde, J.; Lacewell, R. Lincoln, Neb. : The Council; 1992. Proceedings - Great Plains Agricultural Council. p. 26-38; 1992. Meeting held June 9-11, 1992 in Lincoln, Nebraska. Includes references.

Language: English

Descriptors: Northern plains states of U.S.A.; Southern plains states of U.S.A.; Water quality; Groundwater; Surface water; Agricultural production; Environmental impact; Water supply; Agricultural chemicals; Irrigation; Conservation tillage

92

NAL Call. No.: QH545.P4P4844

The impact of conservation tillage and pesticide use on water quality: research needs. Berryhill, W.S. Jr; Lanier, A.L.; Smolen, M.D. Blacksburg : Virginia Water Resources Research Center, VPI and State University; 1989. Pesticides in terrestrial and aquatic environments : proceedings of a national research conference, May 11-12, 1989 / edited by Diana L. Weigmann. p. 397-404; 1989. Literature review. Includes references.

Language: English

Descriptors: Pesticides; Runoff; Water pollution; Water quality; Conservation tillage; Crop residues; Environmental impact reporting; Groundwater; Literature reviews

93

NAL Call. No.: S601.A34

The impact of fertilizer application techniques on nitrogen yield from two tillage systems.

Mostaghimi, S.; Younos, T.M.; Tim, U.S

Amsterdam : Elsevier; 1991 Jun14.

Agriculture, ecosystems and environment v. 36 (1/2): p. 13-22; 1991 Jun14. Includes references.

Language: English

Descriptors: Virginia; Agricultural land; Hapludults; Silt loam soils; Nitrogen; Losses from soil systems; Sediment; Runoff; Water pollution; No-tillage; Tillage; Nitrogen fertilizers; Subsurface application; Application methods; Artificial precipitation; Rain; Yields; Nitrate nitrogen; Ammonium nitrogen; Kjeldahl method; Eutrophication; Surface water; Movement in soil

94

NAL Call. No.: FICHE S-72

Impact of land application of sewage sludge on runoff water quality. Mostaghimi, S.; Deizman, M.M.; Dillaha, T.A.;

Hearwole, C.D. St. Joseph, Mich. : The Society; 1988.

American Society of Agricultural Engineers (Microfiche collection) (fiche no. 88-2041): 18 p.; 1988. Paper presented at the 1988 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Sewage sludge; Tillage; Systems; Application methods; Runoff water; Water composition and quality; Sediments; Nitrogen; Losses from soil systems; Runoff control; Yield response functions

95

NAL Call. No.: 275.29 N272EX

The impact of nitrogen and irrigation management and vadose zone conditions on ground water contamination by nitrate-nitrogen.

Watts, D.; Christiansen, A.; Frank, K.; Penas, E.

Lincoln, Neb. : The Service; 1991.

EC - Cooperative Extension Service, University of Nebraska (91-735): 20 p.; 1991. Includes references.

Language: English

Descriptors: Nebraska; Zea mays; Nitrogen; Irrigation; Groundwater; Pollution

96

NAL Call. No.: 290.9 AM32T

Impact of pesticides on shallow groundwater quality. Gish, T.J.; Isensee, A.R.; Nash, R.G.; Helling, C.S. St. Joseph, Mich. : American Society of Agricultural Engineers; 1991 Jul. Transactions of the ASAE v. 34 (4): p. 1745-1753; 1991 Jul. Includes references.

Language: English

Descriptors: Maryland; Alachlor; Atrazine; Carbofuran; Cyanazine; Groundwater; Monitoring; Movement in soil; Pesticide residues; Tillage; Water pollution; Water quality

Abstract: A three-year field study was initiated in 1986 to determine the impact of tillage practice, mode of pesticide application, and pesticide formulation on chemical transport. The 1.28-ha field site was divided into four plots, two each devoted to no-till and conventional tillage management. Pesticide transport was evaluated by monitoring the rate of change in concentrations of pesticides in a shallow perched water table, located approximately 1 m below the soil surface. Pesticides monitored included atrazine, alachlor, cyanazine and carbofuran. All three herbicides were applied as a single broadcast spray: granular insecticide carbofuran was band-injected at planting.

97 NAL Call. No.: S590.C63
Impact of rainfall and tillage systems on off-site herbicide movement. Shaw, D.R.; Smith, C.A.; Hariston, J.E. New York, N.Y. : Marcel Dekker; 1992. Communications in soil science and plant analysis v. 23 (15/16): p. 1843-1858; 1992. Includes references.

Language: English

Descriptors: Glycine max; Cropping systems; Tillage; Conservation tillage; Herbicides; Losses from soil; Runoff; Water pollution

98 NAL Call. No.: FICHE S-72
Impact of tillage practices on pesticide leaching in coastal plain soils. Brinsfield, R.; Staver, K.; Magette, W. St. Joseph, Mich. : The Society; 1987. American Society of Agricultural Engineers (Microfiche collection) (fiche no. 87-2631): 22 p. ill; 1987. Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Tillage; Techniques; Herbicide application; Leaching; Coastal plains; Soil; Groundwater pollution; Water

composition and quality

99

NAL Call. No.: 290.9 AM32P

Impacts of BMP's and water table management on selected nitrogen processes. Wright, J.A.; Shirmohammadi, A.; Magette, W.L.; Hill, R.

St. Joseph, Mich. : The Society; 1989.

Paper - American Society of Agricultural Engineers (89-2192): 20 p.; 1989. Paper presented at the 1989 International Summer Meeting, June 25-28, 1989, Quebec, Canada. Includes references.

Language: English

Descriptors: Groundwater; Hydrology; Nitrogen; Losses; Models

100

NAL Call. No.: aS21.A8U5/ARS

Influence of tillage on hydrology in western Iowa.

Hjelmfelt, A.T. Jr; Kramer, L.A.

Washington, D.C. : The Service; 1990.

Reprints - U.S. Department of Agriculture, Agricultural Research Service [506]: 10 p.; 1990. Indexed from reprint:

Watershed Planning and Analysis in Action Symposium.

Proceedings of IR conference, Watershed Mgt/Ir Div/ASCE. July 9-11, 1990, Durango, CO. p. 405-414.

Language: English

Descriptors: Iowa; Loess soils; Watersheds; Catchment hydrology; Tillage; Terracing; Pastures; Monoculture; Zea mays; Runoff; Evapotranspiration; Soil conservation

101

NAL Call. No.: 56.9 SO3

Initial storm effects on macropore transport of surface-applied chemicals in no-till soil.

Shipitalo, M.J.; Edwards, W.M.; Dick, W.A.; Owens, L.B.

Madison, Wis. : The Society; 1990 Nov.

Soil Science Society of America journal v. 54 (6): p.

1530-1536. ill; 1990 Nov. Includes references.

Language: English

Descriptors: Zea mays; No-tillage; Macropores; Macropore flow; Atrazine; Strontium; Bromides; Movement in soil; Groundwater pollution; Agricultural chemicals; Rain; Percolation; Leaching

Abstract: Previous research has established that macropores can rapidly transmit water through soil. This observation has raised concern that macropores may also promote rapid movement of agricultural chemicals to groundwater. This is a particular concern for no-till fields where lack of disruption by tillage can lead to the development of extensive macropore systems. In order to investigate the effect of initial rainfall on chemical transport, strontium bromide hexahydrate (SrBr₂.6H₂O)

and atrazine (2-chloro-4-ethylamino-6-isopropylamino-s-triazine) were surface-applied to six 30 by 30 by 30 cm blocks of undisturbed soil obtained from a 25-yr-old, no-till corn (*Zea mays* L.) field with evidence of well-defined macropores attributable to earthworm activity. Half of the blocks then received a 1-h 5-mm simulated rain, which did not produce percolate. Two days later, the blocks received a 0.5-h 30-mm simulated rain, followed by another 0.5-h 30-mm rain 1 wk later. The remaining blocks received only the two 30-mm events. An average of 12% of the applied water passed through all the blocks during and shortly after the first 30-mm rain. Bromide, Sr, and atrazine losses in this percolate were 7, 10, and 2 times less, respectively, from blocks that received the 5-mm rain than from blocks not receiving this initial, light rain. The second 30-mm rain on the blocks not receiving the initial 5 mm produced 1.6 X more percolate than the first 30-mm rain. Yet, transport and flow-weighted average concentrations of Br, Sr, and atrazine were all reduced. These results indicated that the first storm after application can move solutes into the soil matrix, thereby reducing the potential for transport in macropores during subsequent rainfall events.

102

NAL Call. No.: TD427.S33K4

Inventory and hazard assessment of Maryland's coastal sand and gravel wash plants and ponds.

Kerns, Molly Ann

Maryland, Tidewater Administration, Coastal Resources Division
Annapolis, Md. (Tawes State Office Building, Annapolis 21401)
: Dept. of Natural Resources, Coastal Resources Division, ;
1988.

1 v. (various pagings) : ill. ; 28 cm. Prepared for Coastal Resources Division, Tidewater Administration, Department of Natural Resources. November 1988, 1st printing. Includes bibliographical references.

Language: English

Descriptors: Sand and gravel plants; Waste disposal;
Environmental aspects; Chesapeake Bay Region (Md. and Va.);
Settling basins; Environmental aspects; Chesapeake Bay Region
(Md. and Va.); Sediment transport; Environmental aspects;
Chesapeake Bay Region (Md. and Va.)

103

NAL Call. No.: TC823.P52

Irrigation and nitrogen management impacts on ground-water quality. Ritter, W.F.; Scarborough, R.W.; Chirnside, A.E.M.
New York, N.Y. : The Society; 1988.

Planning now for irrigation and drainage in the 21st century :
proc of a conference : Lincoln, Nebraska, July 18-21, 1988 /
sponsored by the Irrig and Drain Div of the American Soc of
Civil Engineers ; edited by D.R. Hay. p. 468-475; 1988.
Includes references.

Language: English

Descriptors: Delaware; Groundwater; Water composition and quality; Irrigation water; Water management; Nitrogen; Nitrate reduction; Leaching

104 NAL Call. No.: TD223.3.L34
Lake Erie conservation tillage demonstration projects evaluating management of pesticides, fertilizer, residue to improve water quality. United States, Environmental Protection Agency, Great Lakes National Program Office, National Association of Conservation Districts
S.l. : s.n. :; 1985.
20, [2] p. : ill. ; 28 cm. Cover title.

Language: English

Descriptors: Water quality management; Soil conservation; Tillage

105 NAL Call. No.: TD201.V57 no.153
Long-term effectiveness and maintenance of vegetative filter strips.
Dillaha, Theo Alvin; Sherrard, Joseph H.; Lee, D.
Virginia Water Resources Research Center, Geological Survey (U.S.), Water Resources Division
Blacksburg, VA: Virginia Water Resources Research Center, Virginia Polytechnic Institute and State University.
vii, 39 p. ; 23 cm. (Bulletin (Virginia Water Resources Research Center) ; 153.). VPI/VWRRC-BULL 153. Supported in part by U.S. Dept. of Interior, as authorized by the Water Resources Research Act of 1984, P.ii. December 1986.
Bibliography: p. 38-39.

Language: English

Descriptors: Sediment transport; Virginia

106 NAL Call. No.: TC823.I75 1991
Long-term effects of tillage and crop rotation on the leaching of nitrate and pesticides to shallow groundwater.
Kanwar, R.S.; Stoltenberg, D.E.; Pfeiffer, R.; Karlen, D.L.; Colvin, T.S.; Honeyman, M.
New York, N.Y. : American Society of Civil Engineers; 1991.
Irrigation and drainage : proceedings of the 1991 national conference, Honolulu, Hawaii, July 22-26, 1991. p. 655-661; 1991. Includes references.

Language: English

Descriptors: Groundwater pollution; Nitrate nitrogen; Tillage; Rotations; Leaching; Pesticides; Fertilizers

107 NAL Call. No.: 56.8 J822

Maintenance of stormwater BMPS in four Maryland counties: a status report. Lindsey, G.; Roberts, L.; Page, W.
Ankeny, Iowa : Soil and Water Conservation Society of America; 1992 Sep. Journal of soil and water conservation v. 47 (5): p. 417-422; 1992 Sep. Includes references.

Language: English

Descriptors: Maryland; Water management; Storms; Regulations; Structures; Maintenance

108 NAL Call. No.: 56.8 J822
Management effects on runoff, soil, and nutrient losses from highly erodible soils in the Southern Plains.
Berg, W.A.; Smith, S.J.; Coleman, G.A.
Ankeny, Iowa : Soil Conservation Society of America; 1988 Sep. Journal of soil and water conservation v. 43 (5): p. 407-410; 1988 Sep. Includes references.

Language: English

Descriptors: Oklahoma; Triticum aestivum; Rangelands; Land management; Environmental impact reporting; Watersheds; Soil management; Erosion; Runoff; Sediments; Nitrogen; Phosphorus; Losses from soil systems; Surveys; No-tillage

109 NAL Call. No.: SF5.B74
Manure management and environmental effects.
Nielsen, V.C.
Haddington : The Society; 1987.
BSAP occasional publication : an occasional publication of the British Society of Animal Production (11): p. 109-116; 1987.
In the series analytic: Pig housing and the environment / edited by A.T. Smith and T.L.J. Lawrence. Proceedings of a Symposium, October 1986, Kenilworth, Scotland. Literature review. Includes references.

Language: English

Descriptors: Pig farming; Pig slurry; Waste disposal; Environmental pollution; Pollution

110 NAL Call. No.: 275.29 M36B
Maryland farmers' adoption of best management practices for nonpoint source pollution control.
Lichtenberg, E.; Lessley, B.V.; Howar, H.D.
College Park, Md. : The Service; 1990-1991.
Bulletin - Cooperative Extension Service, University of Maryland (345): 17 p.; 1990-1991. Includes references.

Language: English

Descriptors: Maryland; Water pollution; Water quality; Farm management; Runoff; Soil chemistry; Cost analysis

111 NAL Call. No.: S590.S48
Mechanized tillage systems effects on soil erosion from an
alfisol in watersheds cropped to maize (Nigeria).
Lal, R.
Amsterdam : Elsevier; July 1984.
Soil & tillage research v. 4 (4): p. 349-360. ill; July 1984.
Includes 14 references.

Language: English

Descriptors: Nigeria

112 NAL Call. No.: S95.E22
A method to measure the environmental impact of pesticides.
Kovach, J.; Petzoldt, C.; Degni, J.; Tette, J.
Geneva, N.Y. : New York (State), Agricultural Experiment
Station, Geneva; 1992.
New York's food and life sciences bulletin (139): 8 p.; 1992.
Includes references.

Language: English

Descriptors: New York; Pesticides; Environmental impact;
Integrated pest management; Measurement; Comparisons;
Toxicity; Regulations

113 NAL Call. No.: S590.C63
Minimizing nitrate leaching in agricultural production: how
good can we get?. Magdoff, F.
New York, N.Y. : Marcel Dekker; 1992.
Communications in soil science and plant analysis v. 23
(17/20): p. 2103-2109; 1992. In the Special Issue:
International symposium on soil testing and plant analysis in
the global community. Paper presented at the second
international symposium, August 22-27, 1991, Orlando, Florida.
Includes references.

Language: English

Descriptors: U.S.A.; Crop production; Nitrate; Leaching;
Groundwater pollution

114 NAL Call. No.: QH540.J6
Mobility of agrochemicals through soil from two tillage
systems. Levanon, D.; Codling, E.E.; Meisinger, J.J.; Starr,
J.L.
Madison, Wis. : American Society of Agronomy; 1992 Jan.
Journal of environmental quality v. 22 (1): p. 155-161; 1992
Jan. Includes references.

Language: English

Descriptors: Plowing; No-tillage; Nitrate nitrogen; Leaching; Ammonium nitrate; Atrazine; Carbofuran; Diazinon; Metolachlor; Movement; Groundwater pollution; Zea mays

Abstract: The fate of agrochemicals is often greatly affected by the surface-soil conditions in the field. This study was conducted to characterize the impact of two contrasting tillage systems on the movement of agrochemicals in soil. The two tillage systems were plow-tillage (PT) and no-tillage (NT) for corn (*Zea mays* L.) production. The study included incubation and leaching of undisturbed soil columns and disturbed soil samples from 16-yr plots subject to the two tillage regimes. The agrochemicals used in the study were NH_4NO_3 , atrazine (2-chloro-4-ethylamino-6-isopropylamino-1,3,5-triazine-2,4 diamine), carbofuran (2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate), diazinon (0,0-diethyl-O-(6-methyl-2(1-methylethyl)-4-pyrimidinyl phosphorothioate), and metolachlor (2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl) acetamide). The results of this study show greater ponded flow movement of all agrochemicals in soils under PT vs. NT conditions. Strong evidence was found for preferential flow through the soil, with the chemicals bypassing much of the soil-matrix under recently plowed soils as well as NT soils. Nitrate leaching was significantly greater under PT than NT, apparently due to greater mineralizing activity of the PT soil compared with the NT soil. The pesticide movement also tended to be greater under PT than NT. Caution should be exercised in generalizing to field conditions, but these data suggest that there can be greater leaching losses of surface-applied agrochemicals to groundwater under PT than under NT.

115

NAL Call. No.: 916762(AGE)

Modeling agricultural nonpoint source pollution for economic evaluation of the Conestoga Headwaters RCWP project.

Crowder, B.M.; Young, C.E.

Washington, D.C. : The Service; 1985 Sep.

ERS staff report - United States Dept. of Agriculture, Economic Research Service (AGES 850614): 70 p.; 1985 Sep.

Available from NTIS, order no. PB86-102514. Includes statistical data. Includes 8 references.

Language: English

Descriptors: Pennsylvania; Pollution; Chemicals; Runoff; Erosion; Nitrites; Manures; Soils; Nutrients

Abstract: Extract: The CREAMS (Chemicals, runoff, and Erosion from Agricultural Management Systems) model was used to evaluate soil and nutrient losses for typical field situations in Lancaster County, Pennsylvania. A wide range of field scenarios was modeled as part of the economic evaluation of the RCWP (Rural Clean Water Program) project. Best management practices (BMOs) reduced surface losses of nutrients. Reducing the amount of nitrogen applied to the field was the only effective method for reducing percolate losses of nitrates.

Stored manure provides more plant-available nitrogen than does daily-spread manure.

116 NAL Call. No.: 290.9 AM32P
Modeling animal waste BMP impacts on bacteria levels in runoff from agricultural lands.
Walker, S.E.; Mostaghimi, S.; Dillaha, T.A.; Woeste, F.E. St. Joseph, Mich. : The Society; 1989.
Paper - American Society of Agricultural Engineers (89-2008): p. 1-18; 1989. Paper presented at the "1989 International Summer Meeting" jointly sponsored by the American Society of Agricultural Engineers and the Canadian Society of Agricultural Engineering, June 25-28, 1989, Quebec, Canada. Includes references.

Language: English

Descriptors: Animal wastes; Bacterial count; Runoff water; Simulation models

117 NAL Call. No.: 290.9 AM32T
Modeling animal waste management practices: impacts on bacteria levels in runoff from agricultural lands.
Walker, S.E.; Mostaghimi, S.; Dillaha, T.A.; Woeste, F.E. St. Joseph, Mich. : American Society of Agricultural Engineers; 1990 May. Transactions of the ASAE v. 33 (3): p. 807-817. ill., maps; 1990 May. Includes references.

Language: English

Descriptors: Virginia; Animal wastes; Water pollution; Runoff; Bacteria; Monte carlo method; Simulation models

118 NAL Call. No.: 292.9 AM34
Modeling cost-effectiveness of agricultural nonpoint pollution abatement programs on two Florida basins.
Heatwole, C.D.; Bottcher, A.B.; Baldwin, L.B.
Minneapolis, Minn. : American Water Resources Association; 1987 Feb. Water resources bulletin v. 23 (1): p. 127-131. maps; 1987 Feb. Includes references.

Language: English

Descriptors: Florida; Pollution by agriculture; Nitrogen; Phosphorus; Control methods; Water composition and quality; Cost benefit analysis; Project appraisal; Water resource management; Models; Coastal areas

119 NAL Call. No.: 292.8 W295
Modeling long-term solute transport in drained unsaturated zones. Kandil, H.; Miller, C.T.; Skaggs, R.W.
Washington, D.C. : American Geophysical Union; 1992 Oct. Water resources research v. 28 (10): p. 2799-2809; 1992 Oct.

Includes references.

Language: English

Descriptors: Unsaturated flow; Transport processes; Solutes; Drained conditions; Soil water balance; Water table; Water quality; Prediction; Simulation; Mathematical models; Algorithms

Abstract: Long-term assessment of solute transport in the unsaturated zone is an important consideration for irrigation management, pesticide management, and subsurface contaminant restoration analysis and design. Mathematical models are often used to perform such analyses. Modeling fluid flow and solute transport in the unsaturated zone typically requires solution of the nonlinear Richards equation and an advective-dispersive equation for contaminant transport as a function of time. Such solutions are possible but computationally expensive. A simplified water balance approach to solve fluid flow in shallow, drained unsaturated zones has been developed and refined over the last 15 years. The objectives of this study were to use results from a water balance model to obtain solutions for solute transport in drained, shallow water table soils, and to compare the results with solutions based upon Richards' equation. Transient soil water flux rates computed with a water balance model were used as input to a Petrov-Galerkin advective-dispersive transport model to simulate solute transport in unsaturated soils. The transport model was checked for consistency by comparison with an analytical solution. Sample simulations showed good agreement between a Richards' equation-based transport model and a water balance-based transport model. Simulations were performed to show predicted trends in water quality over 1-year periods.

120

NAL Call. No.: QH545.A1E58

Modeling the impact of conservation tillage practices on pesticide concentrations in ground and surface waters.

Donigian, A.S. Jr; Carsel, R.F.

Elmsford : Pergamon Press; 1987.

Environmental toxicology and chemistry v. 6 (4): p. 241-250.

ill., maps; 1987. Includes references.

Language: English

Descriptors: Minimum tillage systems; Pesticides; Pesticide residues; Surface water; Groundwater; Leaching; Models

121

NAL Call. No.: TD420.A1P7

Modeling water quality and the effects of agricultural best management practices in the Iowa River Basin.

Bicknell, B.R.; Donigian, A.S. Jr; Barnwell, T.A.

Oxford : Pergamon Press; 1985.

Water science and technology v. 17 (6/7): p. 1141-1153. maps;

1985. Includes references.

Language: English

Descriptors: Iowa; River basins; Water composition and quality; Pollution by agriculture; Runoff; Simulation models; Hydrological models; Sediment pollution; Farm management; Pesticides; Nutrients

122 NAL Call. No.: HD1.A3
Models for systems analysis of potato integrated pest management. Haith, D.A.; Farmer, G.S.; White, G.B. Essex : Elsevier Applied Science Publishers; 1987. Agricultural systems v. 24 (3): p. 183-197; 1987. Includes references.

Language: English

Descriptors: U.S.A.; Solanum tuberosum; Integrated pest management; Mathematical models; Systems analysis; Decision making; Water pollution

123 NAL Call. No.: S561.6.I8I35
Monitoring audience response to demonstration projects-- baseline reports: Des Moines County. Padgitt, S.C. Ames, Iowa : The Extension; 1990 Jun. IFM - Iowa State University Extension (8): 29 p.; 1990 Jun. Includes references.

Language: English

Descriptors: Iowa; Demonstration farms; Field tests; Information; Effects; Conservation tillage; Farmers' attitudes; Groundwater pollution; Water quality; Extension education; Surveys

124 NAL Call. No.: TD223.P39
Monitoring the effects to the ground water system attributable to agricultural practices. Kimball, C.G. Washington, D.C. : U.S. Environ Protection Agency, Office of Water Regul and Standards; 1985. Perspectives on nonpoint source pollution : proceedings of a national conference, Kansas City, Missouri, May 19-22, 1985. p. 125-128. maps; 1985. Includes references.

Language: English

Descriptors: South Dakota; Groundwater; Surface water; Water composition and quality; Monitoring; Tillage; Pesticide application; Fertilizer application

125 NAL Call. No.: 56.8 J822
Nitrogen leaching sensitivity to evapotranspiration and soil

water storage estimates in EPIC.

Benson, V.W.; Potter, K.N.; Bogusch, H.C.; Goss, D.; Williams, J.R. Ankeny, Iowa : Soil and Water Conservation Society of America; 1992 Jul. Journal of soil and water conservation v. 47 (4): p. 334-337; 1992 Jul. Includes references.

Language: English

Descriptors: U.S.A.; Water quality; Nitrogen; Leaching; Movement in soil; Percolation; Soil water balance; Evapotranspiration; Soil water; Storage; Estimation; Methodology; Comparisons; Simulation models; Climatic zones; Meteorological factors; Geographical distribution; Spatial variation; Soil variability; Crop growth stage; Crop management

126

NAL Call. No.: S651.N57

Nitrogen management to minimize adverse effects on the environment. Aldrich, S.R.

Madison, Wis. : American Society of Agronomy; 1984.

Nitrogen in crop production : proceedings, symposium, 25-27 May, 1982, Sheffield, Alabama / spon. by National Fertilizer Development Center of Tennessee Valley Authority ... [et al.] ; Roland D. Hauck. p. 663-673. maps; 1984. Includes references.

Language: English

Descriptors: Nitrogen fertilizers; Crop husbandry; Fertilizer application; Pollution by agriculture

127

NAL Call. No.: TD428.A37N67 1990

North Central Regional Water Quality Conference assessing agricultural impacts on water quality and identifying preventive actions to reduce impacts : April 22-25, 1990..

Assessing agricultural impacts on water quality and identifying preventive actions to reduce impacts

North Central Regional Water Quality Conference 1990 : University of Minnesota?.

Minn.? : Minnesota Extension Service, Educational Development Systems?, 1990?; 1990.

1 v. (loose-leaf) : ill. ; 29 cm. Includes bibliographical references.

Language: English

Descriptors: Agricultural pollution; Water quality management; Water quality

Abstract: This North Central Regional Water Quality Conference Reference Manual contains numerous publications which provide the best available information on measures including pesticide applicator practices to minimize and prevent groundwater contamination and solve water quality problems. The six topic areas covered are: 1) site assessment;

2) pest management; 3) nutrient management; 4) waste management; 5) economics; and 6) policy. Where groundwater comes from, how it moves and the health effects of groundwater contamination as well as pesticide surface runoff, leaching, and exposure concerns are discussed.

128 NAL Call. No.: S589.757.W6N9 1989
Nutrient and pesticide best management practices for Wisconsin farms.. Best management practices for Wisconsin farms, 1st ed..
University of Wisconsin--Extension, Wisconsin, Dept. of Agriculture, Trade and Consumer Protection
Madison, WI : University of Wisconsin-Extension,; 1989.
2 v. : ill., maps (some col.) ; 28 cm. (WDATCP technical bulletin ; ARM-1; Bulletin (University of Wisconsin--Extension) ; A-3466, A-3467.). Cover title. Vol. 2 is Summary and implementation framework. "June, 1989"--P. [2] of cover. Includes bibliographies.

Language: English; English

Descriptors: Agricultural pollution; Farm management; Agriculture; Pesticides; Fertilizers

Abstract: This manual summarizes recommended nutrient and pesticide Best Management Practices (BMPs) for pesticide applicators in the state of Wisconsin to reduce and/or prevent contamination of water resources by pesticides. It also includes an implementation survey of research assessment techniques used to determine management research issues, and cropland and crop-specific assessment techniques. Groundwater contamination susceptibility in Wisconsin is discussed and indicated on the map on the inside back cover.

129 NAL Call. No.: TD428.F67E35 1991
On-site assessment of best management practices as an indicator of cumulative watershed effects in the Flathead Basin.
Ehinger, William; Potts, Donald F.
Flathead Basin Forest Practices, Water Quality and Fisheries Cooperative Program
Kalispell, Mont. (723 5th Ave. E., Kalispell 59901) : Flathead Basin Commission,; 1991.
iv, 137 p. : ill. ; 28 cm. At head of title: Flathead Basin Forest Practices, Water Quality and Fisheries Cooperative Program. June 1991. "100 copies of this public document were published"--P. [4] of cover. Includes bibliographical references (p. 137) and index.

Language: English

Descriptors: Flathead National Forest (Mont.); Forest management; Water quality management; Sediment transport

130

NAL Call. No.: TC823.P52

Pesticide and nitrate movement under conservation and conventional tilled plots.

Steenhuis, T.; Paulsen, R.; Richard, T.; Staubitz, W.; Andreini, M.; Surface, J.

New York, N.Y. : The Society; 1988.

Planning now for irrigation and drainage in the 21st century : proc of a conference : Lincoln, Nebraska, July 18-21, 1988 / sponsored by the Irrig and Drain Div of the American Soc of Civil Engineers ; edited by D.R. Hay. p. 587-595. ill; 1988. Includes references.

Language: English

Descriptors: Pesticides; Nitrates; Soil water movement; Tillage; Experimental plots; Groundwater pollution; Soil analysis; Water composition and quality

131

NAL Call. No.: Slide no.339

Pesticide applicator training.. Slide scripts for private pesticide applicator training

University of Arkansas, Fayetteville, Cooperative Extension Service Fayetteville, Ark.? : University of Arkansas Cooperative Extension Service, [1989?]; 1989.

266 slides : col. + 1 script. Title from running title on script. Title on script: Slide scripts for private pesticide applicator training.

Language: English

Descriptors: Pesticides; Pests; Pesticide applicators (Persons); Spraying equipment

Abstract: This private pesticide applicator training slide program with accompanying script consists of sections on Integrated Pest Management (IPM); pesticides including information on labels, formulations, toxicity, entry, exposure, poisoning symptoms, safe handling, storage and disposal; application equipment and calibration for chemigation and broadcast sprayers; pesticides in the environment, reducing their adverse effects and ground water contamination risks; and nitrogen management.

132

NAL Call. No.: TD172.J61

Pesticide contamination of ground water in the United States-- a review. Ritter, W.F.

New York, N.Y. : Marcel Dekker; 1990 Feb.

Journal of environmental science and health : Part B : Pesticides, food contaminants, and agricultural wastes v. 25 (1): p. 1-29; 1990 Feb. Literature review. Includes references.

Language: English

Descriptors: U.S.A.; Pollution by agriculture; Pesticides;

Groundwater pollution; Mathematical models; Environmental protection; Integrated pest management

133

NAL Call. No.: HD101.S6

Probabilistic cost effectiveness in agricultural nonpoint pollution control. McSweeney, W.T.; Shortle, J.S. Experiment, Ga. : The Association; 1990 Jul. Southern journal of agricultural economics - Southern Agricultural Economics Association v. 22 (1): p. 95-104; 1990 Jul. Includes references.

Language: English

Descriptors: Virginia; Maize; Soybeans; Wheat; Nitrogen; Pollution by agriculture; Water pollution; Runoff control; Water composition and quality; Farm management; Watersheds; Cost analysis; Tillage; No-tillage; Linear programming; Probabilistic models; Case studies

Abstract: Conceptual weaknesses in the use of costs of average abatement as a measure of the cost effectiveness of agricultural nonpoint pollution control are examined. A probabilistic alternative is developed. The focus is on methods for evaluating whole-farm pollution control plans rather than individual practices. As a consequence, the analysis is presented in a chance-constrained activity analysis framework because activity analysis procedures are a practical and well developed device for screening farm plans. Reliability of control is shown to be as important as reduction targets in designing farm plans for pollution control. Furthermore, broad-axe prescriptions of technology in the form of Best Management Practices may perform poorly with respect to cost effectiveness.

134

NAL Call. No.: 290.9 AM32T

Predicting runoff of water, sediment, and nutrients from a New Zealand grazed pasture using CREAMS. Cooper, A.B.; Smith, C.M.; Bottcher, A.B. St. Joseph, Mich. : American Society of Agricultural Engineers; 1992 Jan. Transactions of the ASAE v. 35 (1): p. 105-112; 1992 Jan. Includes references.

Language: English

Descriptors: New Zealand; Grassland management; Grazing effects; Hydraulic conductivity; Losses from soil systems; Prediction; Runoff; Water quality; Computers; Simulation models

Abstract: The ability of the CREAMS model to predict loadings of runoff, sediment and nutrients from a New Zealand grazed pasture was evaluated. Before use, CREAMS was adapted to better represent N and P cycling in grazed pastures and the seasonal variation in hydraulic conductivity observed at the site. There was a moderately strong relationship ($r^2 = 0.81$)

between daily surface runoff volumes predicted by this modified model and volumes measured at the site for 62 events over a three and one half year period. Although the ability of the model to predict daily losses of sediment and nutrients was considerably less ($r^2 < 0.45$), the model was always an unbiased predictor. This unbiased predictive ability provides good estimates of losses over longer time scales (e.g., seasonal) which is often sufficient when evaluating the impacts of land use practices on water quality. The adapted CREAMS model successfully simulated measured reductions in edge-of-field losses of sediment and nutrient upon installation of a vegetated filter strip. We conclude that although CREAMS has limitations in representing the dynamics of grazed pastures, it shows potential as a water quality management tool in pastoral watersheds.

135

NAL Call. No.: 290.9 AM32T

Preferential movement of atrazine and cyanazine under field conditions. Gish, T.J.; Helling, C.S.; Mojasevic, M. St. Joseph, Mich. : American Society of Agricultural Engineers; 1991 Jul. Transactions of the ASAE v. 34 (4): p. 1699-1705; 1991 Jul. Includes references.

Language: English

Descriptors: Maryland; Atrazine; Cyanazine; Field tests; Groundwater; Movement in soil; Silt loam soils; Water pollution

Abstract: The relative importance of preferential pesticide transport in agricultural soils was determined in a two-phase study conducted on a silt loam soil in Maryland. The first phase (1984) consisted of evaluating persistence and mobility of atrazine [2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine] and cyanazine [2-chloro-4-(1-cyano-1-methylethylarnino)-6-ethylamino-s-triazine] under no-tillage corn management. The second phase (1986) dealt with persistence and mobility of the same herbicides on fallow tilled soil subjected to frequent, large water inputs. Although preferential flow was observed under both treatments and water regimes, the no-till system had the most rapid movement of herbicide relative to water inputs. Additionally, all treatments indicated that the greatest potential movement of surface-applied pesticide occurred with the first water input subsequent to application. Once the pesticide has been preferentially transported, it appears to diffuse into the soil matrix, where it is no longer subject to significant preferential movement. Based on field data and calculated mass balance, persistence of atrazine and cyanazine was unaffected by tillage practice and water regime.

136

NAL Call. No.: SB321.G85

Protecting water quality through effective nitrogen management. Erhardt, W.H. Storrs, Conn. : Coop. Ext. Serv., USDA, College of Agriculture

& Natural Resources, Univ. of Conn; 1991 May.
The Grower : vegetable and small fruit newsletter v. 91 (5):
p. 6-7; 1991 May.

Language: English

Descriptors: Nitrogen; Nitrogen fertilizers; Nitrates;
Nitrites; Nitrogen content; Pollution

137 NAL Call. No.: 100 C12CAG
Research results: statewide IPM's first 10 years.
Grieshop, J.I.; Pence, R.A.
Oakland, Calif. : Division of Agriculture and Natural
Resources, University of California; 1990 Sep.
California agriculture v. 44 (5): p. 24-26; 1990 Sep.

Language: English

Descriptors: California; Integrated pest management; Research
projects; Pesticides; Cultural control; Program effectiveness;
Evaluation

138 NAL Call. No.: 290.9 AM32T
Residue, chemical placement, and metolachlor mobility.
Mote, C.R.; Tompkins, F.D.; Allison, J.S.
St. Joseph, Mich. : American Society of Agricultural
Engineers; 1990 Jul. Transactions of the ASAE v. 33 (4): p.
1083-1088. ill; 1990 Jul. Includes references.

Language: English

Descriptors: Tillage; No-tillage; Metolachlor; Herbicide
residues; Soil pollution; Rain; Runoff water

Abstract: Monolithic soil cores were used to evaluate the
impact of tillage and point-of-chemical placement on off-site
movement of metolachlor. Nine 254-mm diameter soil cores were
removed from an agriculturally productive field site and
positioned under a rainfall simulator. Provisions were made
for collecting surface runoff and deep seepage from the cores.
A one-time application of metolachlor at a rate of 2.2 kg
active ingredient per ha was made to three bare, tilled
surfaces, three untilled surfaces beneath a covering of wheat
straw, and three untilled surfaces over-the-top of a covering
of wheat straw. The nine cores were subjected to simulated
rainfall events of 26.5 mm per hr intensity at 4, 48, 168,
504, 1008, and 2016 hours after application of metolachlor. A
small quantity of metolachlor exited the cores in both runoff
and in deep seepage water. There were no significant
differences in concentrations of metolachlor in deep seepage
among cores with the three different surface treatments. There
was, however, significantly more metolachlor in runoff from
cores where the chemical was applied over-the-top of wheat
straw. Results, thus, indicate that a contribution to improved
water quality may be made by developing under-residue

herbicide application practices.

139

NAL Call. No.: QH540.J6

Sediment and nutrient loss from clay soils as affected by tillage. Chichester, F.W.; Richardson, C.W. Madison, Wis. : American Society of Agronomy; 1992 Oct. Journal of environmental quality v. 21 (4): p. 587-590; 1992 Oct. Includes references.

Language: English

Descriptors: Texas; No-tillage; Tillage; Soil management; Clay soils; Triticum aestivum; Zea mays; Sorghum bicolor; Sediment; Nutrients; Losses from soil; Runoff water; Water pollution; Nitrogen; Phosphorus; Agricultural land; Watersheds

Abstract: Agricultural source pollution of water resources has been a source of concern in recent years. Research is needed to define mechanisms of chemical and sediment loss in runoff from agricultural land, and to develop management practices that minimize transport of these pollutants. This study was designed to compare the effect of no-till (NT) and conventional chisel-till (CT) soil management on runoff water volumes, sediment loss, and N and P loss from small watersheds on a clay soil. Three NT and three CT watersheds located on Houston Black clay vertisol soil (fine, montmorillonitic, thermic, Udic Pellusterts) in east central Texas were used for the study. Wheat (*Triticum aestivum* L.), corn (*Zea mays* L.) and sorghum [*Sorghum bicolor* (L.) Moench] were grown rotationally on the watersheds from 1984 to 1989. Runoff amounts, sediment loss, and N and P losses were measured for each rainfall event that produced runoff. Runoff volume was not changed by tillage system and sediment loss and N and P losses in runoff were less, on average, from NT than from CT. Runoff averaged 1.3 ML ha⁻¹ annually for both CT and NT. Average annual quantities for sediment and nutrient losses were: 160 kg ha⁻¹ and 1575 kg ha⁻¹ for sediment, 3.8 kg ha⁻¹ and 8.1 kg ha⁻¹ for N, and 0.8 kg ha⁻¹ and 1.5 kg ha⁻¹ for P for NT and CT, respectively. These results indicate that the loss of sediment and nutrients from agricultural lands could be minimized by using NT on clay soils.

140

NAL Call. No.: FICHE S-72

Simulation of BMP alternatives for NPS pollution assessment. Storm, D.E.; Dilaha, T.A.; Woeste, F.E. St. Joseph, Mich. : The Society; 1985. American Society of Agricultural Engineers (Microfiche collection) (fiche no. 85-2520): 16 p. maps; 1985. Paper presented at the 1985 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Simulation models; Farmland; Water pollution;
Point source; Pollutants; Water composition and quality;
Watersheds

141 NAL Call. No.: QH540.J6
Soil chemistry after eleven annual applications of cattle
feedlot manure. Chang, C.; Sommerfeldt, T.G.; Entz, T.
Madison, Wis. : American Society of Agronomy; 1991 Apr.
Journal of environmental quality v. 20 (2): p. 475-480; 1991
Apr. Includes references.

Language: English

Descriptors: Alberta; Feedlot wastes; Cattle; Application to
land; Plowing; Rotary cultivation; Discing; Application rates;
Organic matter; Soil ph; Electrical conductivity; Copper;
Ammonium; Nitrates; Sodium; Calcium; Chlorides; Sulfates;
Magnesium; Zinc; Bicarbonates; Nitrogen; Phosphorus; Leaching;
Irrigated conditions; Soil pollution; Groundwater pollution

Abstract: In a long-term experiment at Lethbridge, AB, the effects of cattle (*Bos sp.*) manure on soil characteristics were determined after 11 annual applications. Manure, incorporated by cultivating, rototilling or plowing, was applied annually from 1973 to 1983 at 30, 60, and 90 Mg ha⁻¹ (wet wt.) and 60, 120, and 180 Mg ha⁻¹, respectively, to nonirrigated and irrigated dark brown Chernozemic (Typic Haploborolls) clay loam soil. On both the nonirrigated and irrigated soil, the effects from manure, applied annually at greater than recommended rates for 11 yr, were minimal on Cu and NH₄ content and substantial on other parameters determined. There were no significant effects due to tillage methods on these soil parameters. The effects on these soil parameters extended to greater depths under irrigation than under nonirrigation. Most of the applied NH₄ was nitrified, volatilized, or fixed. The accumulation of organic matter, total N, NO₃, total P, available P, soluble Na, Ca+Mg, Cl, SO₄, HCO₃, and Zn in the soil increased with increasing rates of manure applied. The electrical conductivity and sodium adsorption ratio of the soil increased and the soil pH in the surface 60 cm of nonirrigated and 90 cm of irrigated decreased with increased manure rates. The total NO₃ accumulation in the 150-cm soil depth was near 1 Mg ha⁻¹, even at recommended rates, and was high enough to potentially cause soil and water pollution. The available P accumulated mostly in the surface soil and might be sufficient to interfere with the nutrient balance of some crops. Long-term annual application of cattle manure to southern Alberta soils at maximum recommended rates [30 mg ha⁻¹ and 60 Mg ha⁻¹ (wet wt.) for nonirrigated and irrigated land, respectively] is not advisable.

142 NAL Call. No.: 56.8 J822
Soil degradation and land use changes: A representative-farm

analysis [Illinois Soil Erosion and Sedimentation Control Act of 1977, Federal Water Pollution Control Act Amendments of 1972].

Kraft, S.E.; Toohill, T.L.

Ankeny, Iowa : Soil Conservation Society of America; 1984 Sep. Journal of soil and water conservation v. 39 (5): p. 334-338; 1984 Sep. Includes 13 references.

Language: English

Descriptors: Illinois; Soil degradation; Land use; Farm management; Analysis; Tillage; No-tillage; Soil conservation; Law; Programming

143 NAL Call. No.: QH540.J6
Soil tests for estimating labile, soluble, and algae-available phosphorus in agricultural soils.

Wolf, A.M.; Baker, D.E.; Pionke, H.B.; Kunishi, H.M.

Madison, Wis. : American Society of Agronomy; 1985 Jul.

Journal of environmental quality v. 14 (3): p. 341-348; 1985 Jul. Includes references.

Language: English

Descriptors: U.S.A.; Agricultural soils; Phosphorus residual effect; Soil testing; Water pollution

144 NAL Call. No.: 56.8 S039
Some concepts concerning soil site assessment for water quality. Mausbach, M.J.; Nielsen, R.D.

Madison, Wis. : Soil Science Society of America; 1991.

Soil survey horizons v. 32 (1): p. 18-25; 1991. Includes references.

Language: English

Descriptors: Water quality; Land evaluation; Surface water; Contamination; Groundwater pollution; Contaminants; Nutrients; Pesticides; Site factors; Soil types; Runoff; Soil water; Geometry; Vertical movement; Horizontal infiltration; Slope; Geomorphology; Surface layers; Soil properties; Soil formation; Land use; Land management; Tillage; Spatial variation; Temporal variation; Horizons; Profiles; Catchment hydrology

145 NAL Call. No.: S622.2.S65
Spatial simulation to aid in evaluating and treating erosion and water quality problems affecting Lake Erie.

Beasley, D.B.

Ankeny, Iowa : Soil Conservation Society of America; 1985.

Soil erosion and conservation / edited by S.A. El-Swaify, W.C. Moldenhauer, and Andrew Lo. p. 566-573. maps; 1985. Includes 9 references.

Language: English

Descriptors: Canada; U.S.A.; Indiana; Michigan; Ohio;
Agricultural land; River basins; Lakes; Watersheds; Sediment
pollution; Pollution by agriculture; Water pollution;
Eutrophication; Water composition and quality; Monitoring;
Simulation models; Erosion control

146

NAL Call. No.: S539.5.A77

Surface water management for crop production on highly
erodible land. Naderman, G.C.; Hansard, J.R.; Denton, H.P.
New York, N.Y. : Springer; 1990.
Applied agricultural research v. 5 (4): p. 243-254. maps;
1990. Includes references.

Language: English

Descriptors: Erosion; Surface water; Water management;
Removal; Water conservation; Crop production; Sedimentation;
Conservation tillage; Cropping systems

Abstract: Management of surface water has four broad
objectives: (1) Appropriate removal of excess water during wet
periods, (2) Water conservation for crop use, (3) On-site
erosion control to protect long-term soil productivity and
reduce short term damages, and (4) Off-site damage prevention
from sedimentation and water pollution. The various techniques
of water management vary in effectiveness for the four
objectives given. However, for production of crops on erodible
land the importance of water conservation to enhance yield and
potential profits must be emphasized. The benefits of water
management for on-site erosion control are well established.
Economic studies, however, conclude that structural approaches
to control on-site erosion are seldom profitable in terms of
protecting soil productivity. The use of a tillage and
cropping system designed for erosion protection is
economically more attractive than structures, especially if
the cropping system does not greatly reduce the total value of
farm products sold. In contrast to the on site losses annual
costs of off-site damages from cropland erosion and runoff are
probably 10 to 55 times as great. Grain crop production on
highly erodible land continues to be difficult and risky.
Whether farmers can achieve this profitably, and with
conservation compliance as defined by the 1985 Food Security
Act, will greatly depend upon the alternative types of land
available and the extent of conservation treatment required.

147

NAL Call. No.: 916762(AGE)

Targeting soil erosion control efforts in a critical
watershed. Park, W.M.; Sawyer, D.G.
Washington, D.C. : The Service; 1985 Dec.
ERS staff report - United States Dept. of Agriculture,
Economic Research Service (AGES850801): 29 p.; 1985 Dec.
Includes statistical data. Includes 13 references.

Language: English

Descriptors: Tennessee; Vegetation types; Watersheds; Erosion control; Soil conservation; Vegetation; Cost effectiveness analysis; Water composition and quality

Abstract: Extract: The public cost of reducing erosion in a west Tennessee watershed pilot program was 34 percent lower than the national average. The difference was attributed to the pilot program's emphasis on targeting specific erosion problems and to the establishment of permanent vegetative cover on highly eroding land. Even greater use of permanent vegetative cover, no-till cropping practices, and less reliance on cover improvement and terraces could reduce erosion in the area by an additional 32 percent with the same level of funds. A variable cost-sharing approach to erosion control may yield even bigger dividends in a targeting program.

148 NAL Call. No.: TD227.05A37
Technology Evaluation and Development sub-program of SWEEP.
Findlay, W.I.
Ontario? : s.n., 1988? :.; 1988.
Agricultural chemicals and water quality in Ontario : proc of a workshop sponsored by the Ontario Water Management Res and Services Committee : Nov 17-18, 1988, Kitchener, Ontario / J.A. Stone and L.L. Logan (editors). p. 26-34; 1988.

Language: English

Descriptors: Ontario; Water pollution; Regulations; Government organizations; Pollution by agriculture; Lakes; Soil conservation; Programs; Research projects; Technology; Evaluation; Farm management; Cropping systems; Tillage; Pest control; Water management

149 NAL Call. No.: 290.9 AM32T
Terrace channel design and evaluation.
Ghidey, F.; Gregory, J.M.; Thompson, A.L.
St. Joseph, Mich. : American Society of Agricultural Engineers; 1992 Sep. Transactions of the ASAE v. 35 (5): p. 1513-1520; 1992 Sep. Includes references.

Language: English

Descriptors: Terraces; Channels; Design; Mathematical models; Water management

150 NAL Call. No.: TD223.N36 1992
Thinking about a postproject evaluation--start NOW].
Robison, C.W.; Brockway, C.E.
Washington, DC : U.S. Environmental Protection Agency; 1992.
Proceedings: the National RCWP Symposium : 10 years of controlling agricultural nonpoint source pollution : the RCWP

experience : Sept 13-17, 1992, Orlando, Florida. p. 295-299;
1992. Includes references.

Language: English

Descriptors: Idaho; Water quality; Water management; Project
implementation; Program evaluation

151 NAL Call. No.: FICHE S-72
Tillage and N-fertilizer management effects on groundwater
quality. Kanwar, R.S.; Baker, J.L.; Baker, D.G.
St. Joseph, Mich. : The Society; 1987.
American Society of Agricultural Engineers (Microfiche
collection) (fiche no. 87-2077): 18 p.; 1987. Paper presented
at the 1987 Summer Meeting of the American Society of
Agricultural Engineers. Available for purchase from: The
American Society of Agricultural Engineers, Order Dept., 2950
Niles Road, St. Joseph, Michigan 49085. Telephone the Order
Dept. at (616) 429-0300 for information and prices. Includes
references.

Language: English

Descriptors: Groundwater pollution; Water composition and
quality; Agricultural land; Tillage; Nitrogen fertilizers;
Leaching

152 NAL Call. No.: 290.9 AM32T
Tillage and split N-fertilization effects on subsurface
drainage water quality and crop yields.
Kanwar, R.S.; Baker, J.L.; Baker, D.G.
St. Joseph, Mich. : American Society of Agricultural
Engineers; 1988 Mar. Transactions of the ASAE v. 31 (2): p.
453-461. ill; 1988 Mar. Includes references.

Language: English

Descriptors: Tillage; Zea mays; Nitrogen; Drainage water;
Water composition and quality; Crop yield; Subsurface drainage

153 NAL Call. No.: 100 S082 (3)
Tillage effects on agrichemical fate in the soil and aquifer.
Clay, D.E.; Clay, S.A.; Schumacher, T.E.
Brookings, S.D. : The Station; 1991.
TB - Agricultural Experiment Station, South Dakota State
University (97): 2 p. (soil PR 90-40); 1991.

Language: English

Descriptors: South Dakota; Agricultural chemicals; Movement in
soil; Aquifers; Groundwater pollution

154 NAL Call. No.: TD201.V57 no.162

Tillage effects on runoff water quality from sludge-amended soils. Mostaghimi, Saied
Virginia Water Resources Research Center, Geological Survey (U.S.), Branch of Water Institute Programs
Blacksburg : Virginia Water Resources Research Center, Virginia Polytechnic Institute and State University, ; 1988. xi, 81 p. : ill. ; 23 cm. (Bulletin (Virginia Water Resources Research Center) ; 162.). "Published with funds provided in part by the U.S. Geological Survey, U.S. Dept. of the Interior"--T.p. verso. August 1988. VPI-VWRRRC-BULL 162. Bibliography: p. 77-81.

Language: English

Descriptors: Soil conservation; Methodology; Sewage sludge as fertilizer; Environmental aspects; Tillage; Environmental aspects; No-tillage; Environmental aspects; Runoff; Soils; Composition

155

NAL Call. No.: QH540.J6

Tillage effects on sediment and soluble nutrient losses from a Maury silt loam soil.

Blevins, R.L.; Frye, W.W.; Baldwin, P.L.; Robertson, S.D. Madison, Wis. : American Society of Agronomy; 1990 Oct. Journal of environmental quality v. 19 (4): p. 683-686; 1990 Oct. Includes references.

Language: English

Descriptors: Kentucky; Zea mays; Tillage; Chiselling; No-tillage; Runoff; Sediment; Runoff water; Ammonium nitrate; Triple superphosphate; Potassium fertilizers; Triazine herbicides; Crop yield; Silt loam soils

Abstract: As the role of nonpoint-source contamination of surface waters becomes more evident, increasingly more attention is focused on the effects of agricultural practices on soil erosion and water quality. Tillage systems are known to affect the amount of water moving over the surface and through the soil. This study compared the contributions of three tillage systems used in corn (*Zea mays* L.) production with (i) sediment losses and surface runoff and (ii) the potential for nonpoint-source surface water pollution from N and P fertilizers and triazine herbicides. Tillage treatments were no-tillage, chisel-plow tillage, and conventional tillage (moldboard plow plus secondary tillage). The study site was on a Maury silt loam (Typic Paleudalfs). Over the 4-yr period, conventional tillage runoff volume was 576.7 kL ha⁻¹, chisel-plow 205.7 kL ha⁻¹, and no-tillage 239.9 kL ha⁻¹. Total soil loss from conventional tillage was 19.79 Mg ha⁻¹, chisel plow 0.71 Mg ha⁻¹, and no-tillage 0.55 Mg ha⁻¹. Amounts of NO₃(-), soluble P, and atrazine leaving the plots in surface runoff were greatest from conventional tillage and about equal from chisel-plow and no-tillage. The magnitudes of the losses in surface runoff water were small for all chemicals measured.

156

NAL Call. No.: 290.9 AM32T

Transport comparison of technical grade and starch-encapsulated atrazine. Gish, T.J.; Schoppet, M.J.; Helling, C.S.; Shirmohammadi, A.; Schreiber, M.M.; Wing, R.E. St. Joseph, Mich. : American Society of Agricultural Engineers; 1991 Jul. Transactions of the ASAE v. 34 (4): p. 1738-1744; 1991 Jul. Includes references.

Language: English

Descriptors: Atrazine; Encapsulation; Groundwater; Leaching; Movement in soil; Starch; Trickle irrigation; Water pollution

Abstract: The feasibility of using starch-encapsulated atrazine to minimize convective transport under conditions favoring preferential flow was evaluated. Forty small, undisturbed, soil columns (45 cm² X 3 cm) were removed from an established no-tillage management site and randomly grouped into one of five atrazine treatments: 1) technical grade; 2) borate process, starch-encapsulated; 3) jet-cooked, pearl starch-encapsulated; 4) jet-cooked, waxy starch-encapsulated; and 5) untreated control. Columns were drip-irrigated at the rate of 2.5 cm every three days. Highest atrazine levels, 1.30 mg L⁻¹, were observed in the effluent from columns receiving technical-grade atrazine after the first irrigation (2.3 pore volumes), even though piston flow theory indicated that atrazine should not have appeared before 21.9 pore volumes. Computer simulations using the general convection-dispersion equation with first-order dissipation and linear adsorption also significantly underpredicted atrazine mobility. All encapsulated formulations, relative to technical-grade, revealed significantly lower initial atrazine levels in the effluent. Cumulative effluent concentrations indicate that after 16.1 pore volumes, 35, 10, 3, and < 1% of the available atrazine had been leached from the technical-grade, borate, pearl, and waxy starch formulations, respectively.

157

NAL Call. No.: QH540.J6

The transport of bioavailable phosphorus in agricultural runoff. Sharpley, A.N.; Smith, S.J.; Jones, O.R.; Berg, W.A.; Coleman, G.A. Madison, Wis. : American Society of Agronomy; 1992 Jan. Journal of environmental quality v. 21 (1): p. 30-35; 1992 Jan. Includes references.

Language: English

Descriptors: Oklahoma; Texas; Phosphorus; Runoff; Watersheds; Farmland; Bioavailability; Phosphorus fertilizers; Tillage; Minimum tillage; No-tillage; Rotations; Fallow; Stubble mulching; Triticum aestivum; Grasses; Arachis hypogaea; Sorghum bicolor; Losses from soil systems

Abstract: Bioavailable P (BAP) in agricultural runoff represents P potentially available for algal uptake and

consists of soluble P (SP) and a variable portion of particulate P (PP). Evaluation of the impact of agricultural management on BAP in runoff will aid assessment of the resultant biological productivity of receiving water bodies. Soluble P, PP, and bioavailable PP (BPP) (estimated by NaOH extraction) were determined over a 5-yr period in runoff from 20 unfertilized and fertilized, grassed, and cropped watersheds in the Southern Plains. Soluble P, BPP, and BAP loss in runoff was reduced by practices minimizing erosion and runoff, with respective mean annual amounts ranging from 237 to 122, 1559 to 54, and 1796 to 176 g P ha⁻¹ yr⁻¹ (for peanut-sorghum [*Arachis hypogaea* L.-*Sorghum bicolor* (L.) Moench] and native grass watersheds, respectively). However, as vegetative cover improved, BAP (SP plus BPP) comprised a larger portion of total P (TP) loss (29% for peanut-sorghum and 88% for native grass). This results from an increasing contribution to BAP of SP (13% for peanut-sorghum and 69% for native grass watersheds) and BPP to PP (26% for peanut-sorghum and 69% for native grass watersheds). Clearly, P bioavailability is a dynamic function of physiochemical processes controlling erosion, particle size enrichment, P desorption-dissolution reactions, and plant residue breakdown, in addition to soil and fertilizer P management. Hence, the change in trophic state of a water body may not be adequately reflected by TP inputs only. To more reliably evaluate the biological response of a water body to agricultural P inputs, particularly from conservation tillage practices, it may be necessary to determine BAP in runoff.

158 NAL Call. No.: S95.E2
Using models to identify cost-effective pest management programs that minimize ground-water pollution.
Shoemaker, C.; Kanellopoulou, S.; Naranjo, S.; Cheng, M.Y.; Tingey, W.M. Ithaca, N.Y. : New York Agric. Exp. Stations and New York State College of Agric. & Life Sciences; 1988.
New York's food and life sciences quarterly v. 18 (1/2): p. 5-8; 1988.

Language: English

Descriptors: New York; Groundwater; Pollution; Pesticide residues; Integrated pest management; Simulation models

159 NAL Call. No.: 56.8 J822
Using simulation to assess the impacts of conservation tillage on movement of sediment and phosphorus into Lake Erie.
Beasley, D.B.; Monke, E.J.; Miller, E.R.; Huggins, L.F. Ankeny, Iowa : Soil Conservation Society of America; 1985 Mar. Journal of soil and water conservation v. 40 (2): p. 233-237. maps; 1985 Mar. Includes 11 references.

Language: English

Descriptors: Ohio; Michigan; Indiana; Watersheds; Conservation; Tillage; Water pollution; Sediment pollution;

Phosphorus; Computer simulation; Pollution by agriculture

160 NAL Call. No.: 275.29 IO9PA
Vegetative filter strips for improved surface water quality.
Smith, M.
Ames, Iowa : The Service; 1992 Sep.
PM - Iowa State University, Cooperative Extension Service
(1507): 4 p.; 1992 Sep. Includes references.

Language: English

Descriptors: Water quality; Filters; Grass strips; Vegetation types; Grasses; Effects

161 NAL Call. No.: 56.8 J822
Water quality consequences of conservation tillage.
Baker, J.L.; JSWCA; Laflen, J.M.
Ankeny, IA : Soil Conservation Society of America; May-June
1983. Journal of soil and water conservation v. 38 (3): p.
186-193; May-June 1983. Includes 53 references.

Language: English

Descriptors: Water quality; Tillage practices; Conservation practices; Water pollution

Abstract: Extract: Conservation tillage, which leaves some or all of the residue from the previous crop on the soil surface, effectively protects the soil against erosion. Use of conservation tillage has other environmental implications as well, particularly for water quality.

162 NAL Call. No.: QH540.J6
Water quality impacts associated with sorghum culture in Southern Plains. Sharpley, A.N.; Smith, S.J.; Williams, J.R.; Jones, O.R.; Coleman, G.A. Madison, Wis. : American Society of Agronomy; 1991 Jan.
Journal of environmental quality v. 20 (1): p. 239-244; 1991 Jan. Includes references.

Language: English

Descriptors: Sorghum bicolor; Nitrogen fertilizers; Phosphorus fertilizers; Runoff; Sediment; Surface water; Tillage; Transport processes; Water pollution; Water quality; Watersheds; Environmental impact; Eutrophication

163 NAL Call. No.: QH540.J6
Water quality impacts associated with wheat culture in the Southern Plains. Smith, S.J.; Sharpley, A.N.; Naney, J.W.; Berg, W.A.; Jones, O.R. Madison, Wis. : American Society of Agronomy; 1991 Jan.
Journal of environmental quality v. 20 (1): p. 244-249; 1991

Jan. Includes references.

Language: English

Descriptors: Oklahoma; Texas; Triticum aestivum; Nitrogen fertilizers; Phosphorus fertilizers; Losses from soil systems; Runoff; Sediment; Tillage; Environmental impact; Groundwater; Surface water; Water quality; Watersheds

Abstract: Water quality information regarding wheat culture in the Southern Plains is sparse. The objective of this study is to determine the extent to which the area's surface and ground-water quality is influenced by different wheat cultural practices. Concentrations and amounts of sediment, N and P in surface runoff water were determined for conventional till (CT), reduced till (RT), and no till (NT) wheat (*Triticum aestivum* L.) watersheds in the High Plain, Reddish Prairie, and Rolling Red Plain land resource areas of Oklahoma and Texas. During the 4 to 6 yr study periods, RT and NT practices were superior to CT for reducing sediment and associated particulate nutrient discharge. Mean annual discharge ranged from 230 to 15 900 kg ha⁻¹ for sediment, 1 to 27 kg ha⁻¹ for total N, and 0.1 to 6 kg ha⁻¹ for total P. Irrespective of tillage practice, annual soluble nutrient losses in surface runoff water tended to be small, often < 1 kg ha⁻¹ N or P. Successful prediction of soluble P, particulate P, and particulate N losses was achieved using appropriate kinetic desorption and enrichment ratio procedures. Soluble N in runoff posed no particular water quality problem, but recommended P levels were exceeded, even from baseline, unfertilized grassland watersheds. With regard to groundwater quality, elevated levels of NO₃⁻ (e.g., 34 mg N L⁻¹ maximum) were observed on one Reddish Prairie NT watershed.

164

NAL Call. No.: 290.9 AM32P

Water quality impacts of vegetative filter strips.

Dillaha, T.A.

St. Joseph, Mich. : The Society; 1989.

Paper - American Society of Agricultural Engineers (89-2043): 9 p.; 1989. Paper presented at the 1989 International Summer Meeting, June 25-28, 1989, Quebec, Canada. Literature review. Includes references.

Language: English

Descriptors: Filters; Water quality; Pollution; Grass strips; Vegetation; Literature reviews

165

NAL Call. No.: 290.9 AM32P

Water quality impacts of vegetative filter strips and riparian areas. Parsons, J.E.; Daniels, R.D.; Gilliam, J.W.; Dillaha, T.A. St. Joseph, Mich. : The Society; 1990.

Paper - American Society of Agricultural Engineers (90-2501): 12 p.; 1990. Paper presented at the "1990 International Winter Meeting," December 18-21, 1990, Chicago, Illinois. Includes

references.

Language: English

Descriptors: North Carolina; Water quality; Water filters

166 NAL Call. No.: 290.9 AM32T
Water table management practice effects on water quality.
Wright, J.A.; Shirmohammadi, A.; Magette, W.L.; Fouss, J.L.;
Bengtson, R.L.; Parsons, J.E.
St. Joseph, Mich. : American Society of Agricultural
Engineers; 1992 May. Transactions of the ASAE v. 35 (3): p.
823-831; 1992 May. Includes references.

Language: English

Descriptors: Water management; Water quality; Water table;
Drainage; Hydrology; Simulation models; Subsurface irrigation

Abstract: Impacts of water table management (WTM) practices on water quality were modeled using a linked version of CREAMS and DRAINMOD (Parsons and Skaggs, 1988). The CREAMS denitrification component and the linked DRAINMOD-CREAMS model were modified to simulate daily hydrology (runoff, infiltration, evaporation, and soil moisture content), erosion, and nutrient processes for different WTM conditions. Measured data from Baton Rouge, Louisiana, were used to validate the linked model, and then controlled drainage-subirrigation (CD-SI) was simulated to investigate the effects of different WTM systems on runoff, erosion, and nitrogen losses. Results of the study indicated that the linked models performed better than the original CREAMS model in predicting runoff, infiltration, soil moisture content, and erosion, and that the modified linked model performed better than both CREAMS and the original linked model in predicting nitrogen losses from the study site. Results also showed that the CD-SI system simulated by the modified DRAINMOD-CREAMS model predicted increased denitrification and lowered nitrate leaching, unlike the original version. This study concluded that the CD-SI system may be used as a BMP to reduce nitrogen leaching to shallow groundwater systems for areas with high water table conditions.

AUTHOR INDEX

Aldrich, S.R. 126
Allison, J.S. 138
Andraski, B.J. 30, 34
Andreini, M. 130
Axley, J. 75
Bailey, G.W. 63
Baker, D.E. 143
Baker, D.G. 80, 151, 152
Baker, J.L. 35, 71, 87, 151, 152, 161

Baldwin, L.B. 6, 7, 118
Baldwin, P.L. 57, 155
Barnwell, T.A. 121
Baumhardt, R.L. 11
Beasley, D.B. 145, 159
Bengtson, R.L. 45, 166
Benson, V.W. 125
Berg, W.A. 108, 157, 163
Bernado, D.J. 60
Berryhill, W.S. Jr 92
Bicknell, B.R. 121
Blackie, J.R. 38
Blevins, R.L. 56, 57, 155
Bogusch, H.C. 125
Bollich, P.K. 45
Bottcher, A.B. 6, 7, 118, 134
Brinsfield, R. 28, 98
Brockway, C.E. 150
Brown, D.F. 85
Bush, J. 84
Butters, G. 91
Carprio, J.M. 32
Carsel, R.F. 120
Cassell, E.A. 68
Chang, C. 141
Cheng, M.Y. 158
Chenoweth, J.W. 31
Chichester, F.W. 139
Chirnside, A.E.M. 8, 103
Christensen, L.A. 12
Christiansen, A. 95
CIBA-GEIGY Corporation, Agricultural Group, CIBS-GEIGY
Corporation, Agricultural Division, Environmental and Public
Affairs Dept 9
Clausen, J.C. 68
Clay, D.E. ,1, 153
Clay, S.A. 1, 153
Cleary, E.C. 32
Codling, E.E. 114
Coleman, G.A. 108, 157, 162
Colvin, T.S. 106
Conservation Technology Information Center 14
Cook, M.G. 62
Cooper, A.B. 134
Corbett, E.S. 72
Crowder, B.M. 115
Cubbage, F.W. 19
Cuenca, R.H. 36
Daniel, T.C. 30, 34
Daniels, R.D. 165
Degni, J. 112
Deizman, M.M. 94
Denton, H.P. 146
Dick, W.A. 101
Dickinson, W.T. 73
Diekman, M.A. 46
Dilaha, T.A. 140

Dillaha, T. A. 70
Dillaha, T.A. 39, 52, 94, 116, 117, 164, 165
Dillaha, Theo Alvin 105
Dissmeyer, G.E. 26
Donigian, A.S. Jr 120, 121
Edwards, W.M. 42, 101
Ehinger, William 129
Elliott, R.L. 60
Ellis, J.R. 67
Engelbrecht, C. 78
Entz, T. 141
Epp, D.J. 27
Erhardt, W.H. 136
Farmer, G.S. 122
Fausey, N.R. 42
Feagley, S.E. 45
Felando, T. 5
Findlay, W.I. 148
Fishel, David K. 90
Flaig, E.G. 40
Flathead Basin Forest Practices, Water Quality and Fisheries
Cooperative Program 129
Foster, G.R. 20
Fouss, J.L. 166
Frandsen, E. 26
Frank, K. 95
Frye, W.W. 56, 57, 155
Geleta, S. 60
Ghidey, F. 149
Ghodrati, M. 79
Gilliam, J.W. 165
Gish, T.J. 58, 96, 135, 156
Goss, D. 125
Gregory, J.M. 149
Grieshop, J.I. 137
Grizzard, T.J. 74
Groenevelt, P.H. 33
Grunwald, G.K. 32
Gunsalus, B. 40
Hagen, L.J. 61
Haith, D.A. 122
Hall, D.W. 47, 48, 50
Hamlett, J.M. 27
Hansard, J.R. 146
Hariston, J.E. 97
Hearwole, C.D. 94
Heatwole, C.D. 6, 7, 39, 118
Helling, C.S. 58, 96, 135, 156
Hession, W.C. 10
Hickman, C. 19
Hickman, J. 91
Hill, R. 99
Hjelmfelt, A.T. Jr 100
Honeyman, M. 106
Horner, G.L. 24
Hossner, L.R. 84
Howar, H.D. 110

Howitt, R.E. 24
Huber, K.L. 10
Hudson, J.A. 38
Huggins, L.F. 159
Ice, G.G. 41
Isensee, A.R. 37, 58, 96
Johnson, H.P. 71
Jokesova, J. 21
Jones, D.D. 46
Jones, O.R. 157, 162, 163
JSWCA 161
Jury, W.A. 79
Kandil, H. 119
Kanellopoulou, S. 158
Kanwar, R.S. 35, 80, 106, 151, 152
Karlen, D.L. 106
Keeling, J.W. 11
Kelly, D.T. 46
Kenimer, A.L. 52
Kerns, Molly Ann 102
Kimball, C.G. 124
Knisel, W.G. 20
Koerkle, E.H. 49
Kondolf, G.M. 5
Koskinen, W.C. 1
Kovach, J. 112
Kraft, S.E. 142
Kramer, L.A. 100
Kramer, R.A. 39
Kunishi, H.M. 143
Lacewell, R. 91
Lacewell, R.D. 67
Laflen, J.M. 35, 161
LaForce, Russell W. 16
Lake, R.W. 8
Lal, R. 111
Langdale, G.W. 15
Langland, Michael J. 90
Lanier, A.L. 13, 92
Lee, D. 105
Leonard, R.A. 15, 20, 86
Lessley, B.V. 110
Levanon, D. 114
Lichtenberg, E. 110
Lickwar, P. 19
Lietman, P.L. 51
Lindsey, G. 107
Link, M. 83
Linscombe, S.D. 45
Logan, T.J. 4
Logan, Terry James, 44
Long, G.G. 46
Lowery, B. 30
Lynch, J.A. 72
Mack, H.J. 36
MacLeod, J. 17
Madison, C.E. 56

Magdoff, F. 113
Magette, W. 98
Magette, W.L. 82, 99, 166
Malayer, J.R. 46
Malzer, G.L. 1
Mapp, H.P. 60
Marsh, M.H. 33
Maryland, Tidewater Administration, Coastal Resources
Division 102
Mausbach, M.J. 144
McClellan, P.W. 10
McCool, D.K. 85
McDonough, L.M. 85
McDowell, L.L. 61
McFarland, E.R. 43
McSweeney, W.T. 133
McTernan, W.F. 74
Meals, D.W. 68
Meisinger, J.J. 75, 114
Menn, J.J. 2
Milburn, P. 17
Miller, C.T. 119
Miller, E.R. 159
Miranowski, J.A. 53
Mojasevic, M. 135
Monke, E.J. 159
Moore, James A. 69
Mostaghimi, S. 10, 39, 52, 54, 93, 94, 116, 117
Mostaghimi, Saied 154
Mote, C.R. 138
Mueller, D.H. 30, 34
Mulkey, L.A. 63
Naderman, G.C. 146
Naney, J.W. 163
Naranjo, S. 158
Nash, R.G. 58, 96
Nelson, D. 24
Nielsen, R.D. 144
Nielsen, V.C. 109
Nkedi-Kizza, P. 77
Noh, K.M. 80
Norris, P.E. 12, 60
O'Keefe, B.E. 75
Owens, L.B. 42, 101
Padgitt, S.C. 123
Page, W. 107
Papendick, R.L. 85
Park, W.M. 147
Parsons, J.E. 165, 166
Paulsen, R. 130
Penas, E. 95
Pence, R.A. 137
Petersen, K.L. 36
Petzoldt, C. 112
Pfeiffer, R. 106
Pionke, H.B. 143
Piper, S. 55

Porter, L.K. 3
Postel, S. 18
Potter, K.N. 125
Potter, K.W. 89
Potts, Donald F. 129
Prato, T. 66
Razavian, D. 88
Rechcigl, J.E. 77
Reneau, D.R. 67
Richard, T. 130
Richardson, C.W. 139
Risser, D.W. 48
Ritter, G. 40
Ritter, W.F. 8, 103, 132
Roberts, G. 38
Roberts, L. 107
Robertson, S.D. 155
Robison, C.W. 150
Rousseau, A. 73
Rudra, R.P. 73
Sabbagh, G.J. 60
Sadeghi, A.M. 37
Sale, M.J. 5
Sawyer, D.G. 147
Scarborough, R.W. 103
Schepers, J.S. 3, 29
Schoppet, M.J. 156
Schreiber, M.M. 156
Schumacher, T.E. 153
Seckler, D. 22, 23
Setia, P. 55
Shanholtz, V.O. 10, 52
Sharpley, A.N. 157, 162, 163
Shaw, D.R. 97
Sherrard, Joseph H. 105
Shipitalo, M.J. 101
Shirmohammadi, A. 99, 156, 166
Shoemaker, C. 158
Shoemaker, L.L. 82
Shortle, J.S. 53, 133
Sigua, G.C. 45
Singh, P. 80
Skaggs, R.W. 119
Skarda, M. 21
Smith, C.A. 97
Smith, C.M. 134
Smith, M. 160
Smith, S.J. 3, 108, 157, 162, 163
Smolen, M.D. 13, 92
Snyder, R.D. 32
Snyman, P.J. 78
Sommerfeldt, T.G. 141
Springman, R.E. 34
Starr, J.L. 114
Staubitz, W. 130
Staver, K. 28, 98
Steenhuis, T. 130

Steichen, James M. 16
Stevenson, J.C. 28
Stoltenberg, D.E. 106
Stone, J.F. 60
Storm, D.E. 140
Surface, J. 130
Susquehanna River Basin Commission, Pennsylvania, Dept. of
Environmental Resources, Pennsylvania, Bureau of Soil and
Water Conservation, Geological Survey (U.S.), United States,
Environmental Protection Agency, Chesapeake Bay Program 90
Sutton, A.L. 46
Sveda, R. 77
Swank, R.R. Jr 63
Tauer, L.W. 25
Tette, J. 112
Thomas, A.W. 15
Thomas, G.W. 65
Thompson, A.L. 149
Tim, U.S 93
Tim, U.S. 54
Tingey, W.M. 158
Tompkins, F.D. 138
Toohill, T.L. 142
Truhlar, Mark V. 90
Turvey, C.G. 64
United States, Dept. of the Interior, Kansas Water Resources
Research Institute. 16
United States, Environmental Protection Agency, Chesapeake Bay
Program, Virginia Polytechnic Institute and State University,
Dept. of Agricultural Engineering, Virginia Agricultural
Experiment Station, Virginia Polytechnic Institute and State
University, Dept. of Agronomy 70
United States, Environmental Protection Agency, Development
Planning & Research Associates 76
United States, Environmental Protection Agency, Great Lakes
National Program Office, National Association of Conservation
Districts 104 University of Arkansas, Fayetteville,
Cooperative Extension Service 131
University of Wisconsin--Extension, Wisconsin, Dept. of
Agriculture, Trade and Consumer Protection 128
Van Der Merwe, S.W.J. 78
Van Schilfgaarde, J. 91
Virginia Water Resources Research Center, Geological Survey
(U.S.), Branch of Water Institute Programs 154
Virginia Water Resources Research Center, Geological Survey
(U.S.), Water Resources Division 105
Walker, S.E. 116, 117
Wann, D. 81
Watts, D. 95
Wauchope, R.D. 61
Weand, B.L. 74
Webb, J.W. 5
Wendt, C.W. 11
Westerman, P.W. 13
White, G.B. 122
White, R.K. 42
Wichelns, D. 24

Williams, J.R. 125, 162
Wing, R.E. 156
Woeste, F.E. 116, 117, 140
Wolf, A.M. 143
Woodard, H.J. 84
Wright, J.A. 99, 166
Wu, S. 66
Young, C.E. 115
Young, R.W. 52
Younos, T.M. 54, 93

SUBJECT INDEX

2,4-d 52
Acreage 24
Adverse effects 18
Agricultural chemicals 18, 55, 56, 59, 91, 101, 153
Agricultural conservation 14
Agricultural land 47, 74, 88, 89, 93, 139, 145, 151
Agricultural pollution 9, 70, 127, 128
Agricultural production 43, 91
Agricultural soils 143
Agriculture 128
Air pollution 3, 61
Alabama 19
Alachlor 1, 96
Alberta 141
Algorithms 119
Ammonia 3
Ammonium 3, 141
Ammonium nitrate 77, 114, 155
Ammonium nitrogen 93
Ammonium sulfate 77
Analysis 142
Animal husbandry 6
Animal wastes 116, 117
Application 47
Application methods 93, 94
Application rates 47, 77, 141
Application to land 54, 141
Aquifers 47, 50, 153
Arachis hypogaea 157
Artificial precipitation 93
Atrazine 8, 37, 52, 96, 101, 114, 135, 156
Bacteria 117
Bacterial count 116
Bench terraces 23
Bicarbonates 141
Bioavailability 157
Bromides 101
Bromoxynil 85
Calcium 141
California 5, 24, 79, 137
Canada 145
Carbofuran 96, 114
Case studies 133
Catchment hydrology 88, 89, 100, 144

Cattle 141
Cattle husbandry 7
Channels 149
Chemical analysis 42
Chemicals 115
Chesapeake Bay Region (Md. and Va.) 102
Chiselling 11, 155
Chlorides 141
Clay loam soils 11
Clay soils 139
Clearcutting 72
Climatic factors 88
Climatic zones 125
Coastal areas 28, 118
Coastal plain soils 37
Coastal plains 98
Comparisons 112, 125
Composition 154
Computer simulation 159
Computer software 20
Computer techniques 60
Computers 134
Concentration 47
Conservation 55, 159
Conservation practices 12, 161
Conservation tillage 3, 16, 34, 44, 56, 59, 66, 78, 89, 91, 92, 97, 123, 146
Constraints 64
Contaminants 144
Contamination 83, 144
Contour ridging 66
Control 26
Control methods 118
Copper 141
Corn belt of U.S.A. 55
Cost analysis 110, 133
Cost benefit analysis 22, 23, 118
Cost effectiveness analysis 147
Costs 19, 64
Cover crops 84
Crop growth stage 125
Crop husbandry 6, 126
Crop management 17, 24, 60, 73, 74, 85, 88, 125
Crop production 77, 113, 146
Crop residues 52, 78, 92
Crop yield 33, 78, 152, 155
Cropping systems 97, 146, 148
Crusts 11
Cultivation 45
Cultural control 137
Cyanazine 96, 135
Cynodon dactylon 84
Databases 13
Decision making 64, 122
Delaware 103
Demonstration farms 123
Denitrification 62

Design 149
Diazinon 114
Dikes 11
Discharge 17
Discharges 42
Discing 141
Distribution 86
Downward movement 1
Drainage 17, 24, 38, 166
Drainage water 152
Drained conditions 119
Dry farming 32
Dry matter accumulation 84
Economic analysis 19, 21, 26
Economic impact 12, 24, 25, 60, 67
Effects 123, 160
Electrical conductivity 141
Encapsulation 156
Environmental aspects 44, 102, 154
Environmental assessment 65
Environmental degradation 22, 23
Environmental factors 46
Environmental impact 3, 60, 64, 91, 112, 162, 163
Environmental impact reporting 81, 92, 108
Environmental pollution 2, 18, 39, 109
Environmental protection 132
Erosion 8, 33, 61, 85, 88, 89, 108, 115, 146
Erosion control 27, 31, 34, 56, 65, 66, 73, 86, 145, 147
Estimation 125
Eutrophication 3, 93, 145, 162
Evaluation 137, 148
Evapotranspiration 36, 100, 125
Experimental design 17
Experimental plots 130
Extension education 123
Externalities 64
Fallow 32, 78, 157
Farm management 8, 39, 53, 64, 110, 121, 128, 133, 142, 148
Farmers' attitudes 123
Farmland 8, 50, 56, 140, 157
Federal programs 55
Feedlot effluent 42
Feedlot runoff 70
Feedlot wastes 42, 141
Fencing 7
Fertilizer application 38, 82, 124, 126
Fertilizers 47, 90, 106, 128
Field tests 123, 135
Fields 45
Filters 160, 164
Filtration 56
Flathead National Forest (Mont.) 129
Flood control 31
Flood irrigation 45
Flooded rice 45
Floods 89
Florida 6, 7, 19, 40, 77, 118

Flow 38
Fodder crops 4, 21
Forest management 26, 72, 129
Forest resources 26
Forestry economics 26
Formulations 79
Furrows 11
Geographical distribution 125
Geometry 144
Geomorphology 5, 144
Georgia 19
Gilts 46
Glycine max 97
Government organizations 148
Gramineae 84
Grass strips 56, 160, 164
Grasses 157, 160
Grassland improvement 38
Grassland management 134
Grazing effects 134
Grids 7
Groundwater 29, 39, 43, 47, 48, 55, 58, 59, 67, 80, 91, 92, 95, 96, 99, 103, 120, 124, 135, 156, 158, 163
Groundwater pollution 3, 8, 28, 35, 43, 60, 62, 82, 83, 98, 101, 106, 113, 114, 123, 130, 132, 141, 144, 151, 153
Groundwater recharge 47, 50
Hapludults 93
Harvesting 19
Herbicide application 98
Herbicide residues 37, 138
Herbicides 65, 86, 97
High water tables 24
Horizons 144
Horizontal infiltration 144
Humid zones 42
Hydraulic conductivity 11, 134
Hydroelectric schemes 5
Hydrological data 5
Hydrological models 121
Hydrology 10, 42, 43, 87, 90, 99, 166
Idaho 66, 150
Illinois 142
Impact 11
Improvement 8
Indiana 145, 159
Infiltration 11, 42, 78
Information 123
Integrated pest management 2, 18, 112, 122, 132, 137, 158
Ion uptake 84
Iowa 31, 59, 100, 121, 123
Irrigated conditions 141
Irrigation 3, 60, 79, 81, 91, 95
Irrigation systems 67
Irrigation water 103
Kentucky 155
Kinetic energy 11
Kjeldahl method 93

Lakes 145, 148
Land evaluation 144
Land management 20, 89, 108, 144
Land productivity 22, 23
Land resources 26
Land use 38, 74, 89, 142, 144
Law 142
Leachates 1
Leaching 3, 28, 29, 35, 55, 65, 82, 98, 101, 103, 106, 113,
114, 120, 125, 141, 151, 156
Legislation 41
Liabilities 64
Linear programming 133
Literature reviews 3, 92, 164
Loam soils 33, 57
Loess soils 100
Logging 19
Losses 5, 7, 52, 99
Losses from soil 97, 139
Losses from soil systems 3, 28, 33, 38, 54, 93, 94, 108, 134,
157, 163
Louisiana 45
Lysimeters 1, 38
Macropore flow 101
Macropores 101
Magnesium 141
Maintenance 107
Maize 55, 133
Maize soils 37
Manures 34, 47, 115
Maryland 28, 37, 43, 96, 107, 110, 135
Mathematical models 74, 119, 122, 132, 149
Measurement 112
Meltwater 32, 32
Meteorological factors 125
Methodology 125, 154
Metolachlor 114, 138
Metribuzin 85
Michigan 145, 159
Microwatersheds 73
Mine spoil 84
Mineral content 33, 45, 84
Minimum tillage 157
Minimum tillage systems 25, 35, 52, 61, 65, 74, 120
Models 82, 99, 118, 120
Monitoring 51, 96, 124, 145
Monoculture 100
Montana 32
Monte carlo method 117
Movement 114
Movement in soil 1, 3, 60, 77, 79, 93, 96, 101, 125, 135,
153, 156
Multiple cropping 25
Nature conservation 62
Nebraska 83, 88, 95
New York 112, 158
New Zealand 134

NigeriaI 111
Nitrate 83, 113
Nitrate nitrogen 93, 106, 114
Nitrate reduction 103
Nitrates 1, 8, 29, 35, 44, 47, 130, 136, 141
Nitric oxide 3
Nitrites 115, 136
Nitrogen 3, 7, 28, 54, 75, 77, 93, 94, 95, 99, 103, 108, 118, 125, 133, 136, 139, 141, 152
Nitrogen content 136
Nitrogen cycle 3
Nitrogen dioxide 3
Nitrogen fertilizers 3, 54, 93, 126, 136, 151, 162, 163
Nitrous oxide 3
No-tillage 37, 54, 56, 93, 101, 108, 114, 133, 138, 139, 142, 154, 155, 157
No-tillage systems 36
North Carolina 62, 165
North central states of U.S.A. 4
Northern plains states of U.S.A. 91
Nutrient availability 3, 33, 75
Nutrient content 33, 45, 77
Nutrient uptake 75
Nutrients 38, 48, 49, 115, 121, 139, 144
Ohio 145, 159
Oklahoma 60, 108, 157, 163
Ontario 64, 73, 148
Oregon 36
Organic matter 141
Panicum coloratum 84
Paspalum notatum 77
Pastures 7, 38, 100
Pennsylvania 27, 47, 48, 49, 50, 51, 115
Percolation 27, 101, 125
Periodicals 14, 14, 14, 14
Persistence 86
Pest control 60, 148
Pesticide application 82, 124
Pesticide applicators (Persons) 131
Pesticide persistence 2
Pesticide residues 2, 45, 61, 62, 96, 120, 158
Pesticide side effects 18
Pesticides 2, 9, 44, 55, 58, 60, 63, 79, 92, 106, 112, 120, 121, 128, 130, 131, 132, 137, 144
Pests 131
Phosphorus 7, 8, 15, 33, 34, 54, 108, 118, 139, 141, 157, 159
Phosphorus fertilizers 54, 73, 157, 162, 163
Phosphorus residual effect 81, 143
Pig farming 109
Pig housing 46
Pig slurry 21, 46, 109
Pisum sativum 85
Placement 1
Plains 32
Plant height 33
Plant production 39
Plant tissues 77

Plowing 35, 114, 141
Point source 140
Pollutants 140
Pollution 65, 88, 95, 109, 115, 136, 158, 164
Pollution by agriculture 20, 25, 28, 38, 63, 73, 74, 81, 118,
121, 126, 132, 133, 145, 148, 159
Pollution control 40, 48
Poly(vinyl alcohol) 33
Ponding 11
Potassium fertilizers 155
Practice 6
Precipitation 89
Prediction 86, 119, 134
Prevention 28
Probabilistic models 133
Profiles 1, 144
Profitability 64
Program effectiveness 137
Program evaluation 22, 23, 150
Programming 142
Programs 83, 148
Project appraisal 118
Project implementation 150
Protection 19
Quality 44
Rain 11, 37, 64, 93, 101, 138
Rainfall simulators 1, 52
Rangelands 108
Regulations 64, 107, 112, 148
Removal 146
Research 3
Research projects 137, 148
Residual effects 85
Resource conservation 19
Returns 55
Rhizosphere 37
Ridging 1
Riparian vegetation 5
Risks 53
River basins 7, 121, 145
Rotary cultivation 141
Rotation 21
Rotations 4, 66, 80, 106, 157
Row tillage 36
Runoff 3, 7, 16, 27, 33, 34, 38, 47, 56, 60, 65, 74, 85, 88,
89, 92, 93, 97, 100, 108, 110, 115, 117, 121, 134, 144, 154,
155, 157, 162, 163
Runoff control 42, 94, 133
Runoff water 15, 51, 52, 54, 57, 59, 86, 94, 116, 138, 139,
155
Salinity 24
Sand and gravel plants 102
Sandy loam soils 79
Seasonal variation 89
Sediment 27, 45, 54, 56, 59, 66, 93, 139, 155, 162, 163
Sediment pollution 121, 145, 159
Sediment transport 70, 102, 105, 129

Sediment yield 88
Sedimentation 146
Sediments 94, 108
Selenium 84
Settling basins 102
Sewage sludge 75, 94
Sewage sludge as fertilizer 154
Shoots 84
Silt loam soils 93, 135, 155
Silty soils 57
Silviculture 41, 72
Simulation 119
Simulation models 6, 7, 10, 60, 86, 88, 116, 117, 121, 125,
134, 140, 145, 158, 166
Site factors 144
Slope 144
Sludges 54
Snow cover 32
Sodium 141
Soil 98
Soil amendments 75
Soil analysis 130
Soil and water conservation 15, 23, 62
Soil chemistry 8, 110
Soil compaction 64
Soil conservation 3, 12, 14, 22, 27, 31, 35, 39, 56, 86, 89,
100, 104, 142, 147, 148, 154
Soil degradation 142
Soil depth 37
Soil erosion 12
Soil formation 144
Soil management 26, 55, 108, 139
Soil ph 141
Soil pollution 79, 85, 138, 141
Soil properties 144
Soil testing 75, 143
Soil types 144
Soil variability 125
Soil water 32, 125, 144
Soil water balance 119, 125
Soil water movement 130
Soil water regimes 79
Soils 115, 154
Solanum tuberosum 122
Solutes 119
Sorghum bicolor 139, 157, 162
South Africa 78
South central states of U.S.A. 20
South Dakota 124, 153
South eastern states of U.S.A. 15, 20, 41
Southern plains states of U.S.A. 91
Soybeans 55, 133
Spatial distribution 37
Spatial variation 37, 125, 144
Spraying equipment 131
Spraying precautions 62
Starch 156

State government 83
Storage 125
Storms 107
Stream flow 5, 89
Stream measurements 90
Strip cropping 32
Strontium 101
Structures 107
Stubble mulching 157
Stubble strips 32
Subsurface application 93
Subsurface drainage 152
Subsurface irrigation 166
Sulfates 141
Surface layers 11, 144
Surface treatment 33
Surface water 1, 39, 45, 47, 64, 86, 91, 93, 120, 124, 144, 146, 162, 163
Surveys 108, 123
Systems 94
Systems analysis 63, 122
Systems approach 39
Technical progress 18
Techniques 98
Technology 67, 148
Temperate zones 17
Temporal variation 144
Tennessee 147
Terraces 22, 51, 149
Terracing 50, 100
Texas 11, 84, 139, 157, 163
Tile drainage 3, 17
Tiles 42
Tillage 1, 4, 15, 29, 31, 37, 38, 53, 54, 55, 57, 58, 62, 63, 66, 67, 79, 80, 85, 86, 87, 88, 93, 94, 96, 97, 98, 100, 104, 106, 124, 130, 133, 138, 139, 142, 144, 148, 151, 152, 154, 155, 157, 159, 162, 163
Tillage practices 12, 161
Toxic substances 18
Toxicity 112
Transport 86
Transport processes 119, 162
Trends 12
Triazine herbicides 155
Trickle irrigation 156
Triple superphosphate 155
Triticum 78
Triticum aestivum 32, 85, 108, 139, 157, 163
U.S.A. 18, 25, 26, 42, 65, 113, 122, 125, 132, 143, 145
United Kingdom 38
United States 14, 14, 14, 14
Unsaturated flow 119
Upland areas 38
Uranium 84
Use efficiency 3
Utah 81
Vegetation 147, 164

Vegetation types 147, 160
 Ventilation 46
 Vermont 68
 Vertical movement 144
 Virginia 54, 74, 93, 105, 117, 133
 Volatilization 3
 Washington 85
 Waste disposal 18, 46, 102, 109
 Water 9, 70, 76
 Water composition and quality 4, 6, 7, 8, 25, 29, 38, 39, 43, 52, 57, 72, 87, 94, 98, 103, 118, 121, 124, 130, 133, 140, 145, 147, 151, 152
 Water conservation 11, 14, 16, 22, 32, 56, 78, 146
 Water erosion 3
 Water filters 165
 Water flow 1
 Water management 6, 13, 40, 45, 48, 49, 81, 103, 107, 146, 148, 149, 150, 166
 Water pollution 12, 13, 15, 26, 28, 34, 40, 41, 53, 56, 61, 72, 73, 74, 81, 92, 93, 96, 97, 110, 117, 122, 133, 135, 139, 140, 143, 145, 148, 156, 159, 161, 162
 Water quality 10, 13, 14, 17, 19, 34, 40, 45, 47, 48, 49, 51, 54, 55, 58, 59, 68, 77, 80, 83, 90, 91, 92, 96, 110, 119, 123, 125, 127, 134, 144, 150, 160, 161, 162, 163, 164, 165, 166
 Water quality management 104, 127, 129
 Water resource management 26, 118
 Water supply 91
 Water table 50, 119, 166
 Water use 67
 Water, Underground 44
 Watershed management 7, 10, 66, 68
 Watersheds 7, 15, 49, 64, 68, 74, 88, 100, 108, 133, 139, 140, 145, 147, 157, 159, 162, 163
 Weed control 61
 Wells 47
 Wetlands 41
 Wheat 133
 Wind erosion 3
 Winter 85
 Wisconsin 89
 Yield response functions 94
 Yields 12, 24, 36, 93
 Zea mays 33, 36, 75, 95, 100, 101, 114, 139, 152, 155
 Zinc 141

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