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Annual membership fees
are \$5.00
Student annual
membership fees are
\$3.00

EDITOR'S COMMENTS

The topic of this year's BC Soil Science Workshop is 'Soil Management Effects on Water and Soil Quality', to be held Thursday and Friday, February 18 and 19 at UBC. The details of the speakers, time and location are on pages five and six. It promises to be an interesting session; we hope to see you there. Please register early because we need to know the number of people attending the two luncheons. If you register by February 8 you will receive a \$10 discount on the registration fees. Registration fees need not be paid until the day of the Workshop. Bring your ideas for topics for the February 1994 Workshop, to be discussed at PRSSS Annual General meeting during luncheon on February 18.

We are still hoping that people will come forward and offer to represent their region in BC, to contribute a synopsis of activities and interests of soil science in their area. News of upcoming events, recent published reports, ongoing projects, job postings and the movements of people are of interest to our readers. Submissions of longer articles are always welcome. Send your contributions in computer format (WordPerfect or ASCII files); even submissions on paper will be gratefully accepted! The deadline for the next newsletter May 3, 1993. Correspondence by E-mail is available: kcook@unixg.ubc.ca

Thanks to all who made contributions to this issue.

Kathy Cook

In this issue...

**16TH ANNUAL B.C. SOIL SCIENCE WORKSHOP
AGENDA - FEBRUARY 18 & 19, 1993**

Also...

- ...PRSSS Fall Evening Session on Solid Waste Management a Success
- ...Manure and Nitrogen Management in Raspberry Production
- ...Agricultural Waste Management Project at UBC
- ...Application of Molecular Techniques in Forest and Agricultural Systems
- ...Notes From the Regions
- ...Who's Where
- ...Books & Publications
- ...Coming Events

PRSSS FALL EVENING SESSION ON SOLID WASTE MANAGEMENT A SUCCESS

Waste management has emerged as a central environmental topic in the 1980's and 1990's. Contamination of local and regional water supplies as well as many problems associated with landfills are incentives for the development of creative approaches to organic waste management. At the PRSSS Fall Evening Session on November 18, 1992 four local speakers involved in some aspect of solid organic waste management made presentations to an audience of over 40 people.

The speakers came from government, university, and private industry and brought perspectives on the issue with a range of emphasis from research to implementation of promising or proven alternatives. **Rick Chase**, President of Bio-Waste Management Ltd, opened the evening by describing a commercial operation involved with creating saleable products from organic wastes. **Craig Peddie**, from the Greater Vancouver Regional District, talked about the GVRD's Residual Management Program with an emphasis on the recycling of sewage sludge, a large component in the urban organic waste stream. **Ruth McDougall**, representing the BC Hog Commission, described efforts being developed to manage swine manure. And **Cindy Prescott**, a researcher in the Department of Forest Sciences at UBC presented an overview of an application for forest nutrition, providing a promising avenue for making productive use of urban sewage. Rick Chase described the emergence of Bio-Waste Management Ltd. in the late 1980's out of the need to address the growing problem of management of poultry manure in the District of Matsqui. It has since grown to become a multi-million dollar enterprise taking in organic wastes from many origins including food processing,

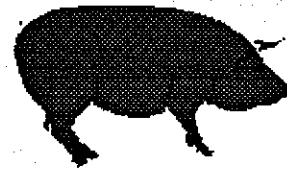
...we have a long way to go in addressing the disposal of the solid organic wastes developed by our activities in the Lower Fraser Valley.

farming, hatcheries, yard and garden and more recently, fish and paper waste. A collection of technologies has been implemented to compost these nutrient-rich organic sources to form useful horticultural products in 21 days. It is the only Matsqui plant to employ both windrow and in-vessel composting and on-site bagging and pelletising. Blending of biomass is important in order to get the correct nutrient level in the final product.

Craig Peddie gave an overview of GVRD's Residual Management Program, focussing on recycling of municipal sludge. Currently, anaerobic digesters produce sludge that is held in lagoons or stock piled. The Sludge Management Strategy has identified a number of possible uses for this

sludge including landfill and mining site reclamation, forest nutrition, rangeland improvement, compost, turf, Christmas tree farms, and topsoil. Some of these options are being implemented by the GVRD generally on a pilot-project basis. For example, attempts are being made to reclaim 65 hectares of the Burns Bog landfill by incorporation of sludge material.

Ruth McDougall discussed the problem of swine-manure management in the Lower Fraser Valley. Swine farmers typically have a small land base with few options for manure disposal. As part of the Canada BC Soil Conservation Project, approaches are being developed for on-farm processing of the manure into useful products. Since only 10-15% of swine manure is solids and because 95% of nutrients is in the liquids, any successful strategies will likely involve the separation of the liquids and solids.



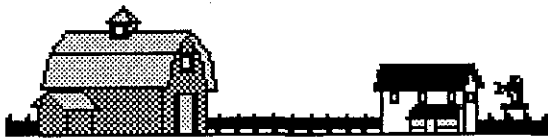
Processes are currently being tested in the valley as part of this initiative. A combination of separation and composting may prove effective.

Cindy Prescott discussed a research project looking into sewage sludge and its potential for improving forest nutrition. Because nitrogen is typically a limiting nutrient in our forest soils, it may be feasible in our region to use sewage sludge to increase the growth of young forests. Results from an experimental site on Northern Vancouver Island show that it may be necessary to get the trees to a state where they can compete with salal before applying the sewage sludge. Unfortunately, this forest fertilization approach cannot currently compete economically with inorganic fertilizer application. However, there exists the added incentive that it also deals with a significant waste disposal problem with associated economic and environmental costs.

It was clear from the presentations and the discussions that followed that we have a long way to go in addressing the disposal of the solid organic wastes developed by our activities in the Lower Fraser Valley. Alternatives to the status quo are emerging. However, at some point we will have to address the deeper issue of the generation of these wastes. Any management plan will have to incorporate significant waste reduction along with these more innovative approaches to disposal.

Martin Carver
PhD Candidate
Resource Management Science, UBC

MANURE AND NITROGEN MANAGEMENT IN RASPBERRY PRODUCTION



Poor understanding of nitrogen requirements for raspberries and the ready availability of poultry manure for the crop has contributed to nitrate pollution in the Abbotsford aquifer. The Abbotsford aquifer is the largest unconfined aquifer in the lower Fraser River Valley. It covers approximately 100 km² in Canada and a similar area in Washington. Land use over the Canadian portion of the aquifer is primarily agricultural with significant raspberry and poultry production. Recent studies have documented that nitrate concentrations in the aquifer often exceed the Canadian drinking water guideline of 10 mg L⁻¹.

Three experiments are underway to improve nitrogen fertilizer and poultry manure recommendations for raspberries. The three year project was initiated in 1991 with funding provided by the Canada-B.C. Soil Conservation Program, the B.C. Raspberry Growers' Association and Agriculture Canada.

Raspberries were fertilized with poultry manure (100 and 200 kg total N ha⁻¹), or ammonium nitrate (0 and 55 kg N ha⁻¹) at two sites, one with a history of manure

...nitrate concentrations in the aquifer often exceed the Canadian drinking water guideline...

application and one without. Soil extractable NH₄ and NO₃ were measured to 60 cm depth at three inter-row spacings during the growing season and in late October. In addition, dry matter yield and total N uptake by raspberry canes were measured and berry yields were estimated.

A second experiment focused on nitrogen losses from surface applied poultry manure. Soil inorganic N was measured on plots where poultry manure (400 kg total N ha⁻¹) was incorporated 4 hours, 1, 10 or 30 days after application. Soil samples were taken to 60 cm depth three times during the 30 day interval.

A third experiment considered nitrogen uptake by an oat cover crop planted on five seeding dates from early August to late September. Spring barley and winter wheat were also planted on the second date for comparison. Cover crop dry matter yield and total N uptake were determined.

The soil and plant analyses will be performed in the

next few months. All three experiments will be repeated in 1993.

D.M. Dean¹, B.J. Zebarth¹, C.G. Kowalenko¹, J.W. Paul¹, and K. Chipperfield²

¹Agriculture Canada Agassiz Research Station

²Sustainable Poultry Farming Group

SANDRA TRAICHEL WINS TERRASOL SCHOLARSHIP AT UBC

The first recipient of the new Terrasol Soil Conservation Scholarship is Sandra Traichel, a Fourth Year Soil Science student at U.B.C. This \$2000 scholarship, funded by Terrasol Environment Industries of North Vancouver, is awarded to an advanced undergraduate student of high academic standing studying in the area of soil and water conservation. Sandra's B.Sc.(Agr.) thesis will be on the effects of land levelling on subsequent soil fertility. In addition to her thesis project, Sandra has been working with Dr. Art Bomke on an integrated management project in Delta, investigating the use of cover crops for soil conservation and for enhancement of migratory waterfowl habitat. The Department of Soil Science is grateful to Terrasol for its support of education in soil science and for its commitment to fostering a professional approach to soil conservation in the future.

OTHER UBC SOIL SCIENCE STUDENT AWARDS

Bill Denham, an undergraduate in the UBC Department of Soil Science, has won a Rhona Clare Gillis Scholarship in Agricultural Sciences and the Canadian Society of Soil Science Book Prize. Bill transferred into Soil Science last year and worked last summer for the Ministry of Forests in the Prince George Forest Region.

James Hickling is this years recipient of the C.A. Rowles Alumni Scholarship, awarded to the top student in Third Year Soil Science at UBC.

PRSSS ANNUAL GENERAL MEETING
AND LUNCHEON

Thursday, February 18, 1993 at 12:00 AM

THEME FOR 1994 WORKSHOP

A discussion will be held of potential topic areas to be covered in the 1994 Workshop

AGRICULTURAL WASTE MANAGEMENT PROJECT AT UBC

In 1990, the B.C. Ministry of Environment announced the availability of some funding to B.C. universities to address important environmental problems, including 'Hazardous, Toxic and Special Wastes'. A group from around campus, led by Dr. John Grace (now Dean of Graduate Studies), was assembled from a wide range of potentially interested departments. One of the terms of reference was that the team(s) should be multidisciplinary when appropriate inter-university. A U.B.C. proposal was submitted in 1990 with several components, all related to 'waste' problems, including problems of pulp-mill waste, waste management in an urban setting - including incineration options, and integrated management of agricultural wastes. The latter was prepared by a group including representatives of the departments of BioResource Engineering (BIOE), Microbiology, Soils, Agricultural Economics, Political Science and Animal Science. The fascinating part of this first phase (as usual hurried by unrealistic deadlines) was the interplay between exponents of very different disciplines, with enormous differences in terminology and fundamental assumptions.

The original concept of the proposal was to tackle three areas (i) Economics & Policy, (ii) Biological Waste Management, and (iii) Waste Utilization/Disposal, with emphasis on the problem of wastes of high water content, high B.O.D., shortage of land for appropriate land-application, and potential odour problems. Following review by the Science Council of B.C., funding was made available, initially for an 18 month period in 1991-92, and recently additional funding has been made available for 1993. With funding restricted to about 13% of their original funding proposal for the first phase for the Agricultural Waste Group, it was necessary to focus on selected aspects of a wide-ranging subject. While some aspects, like digestion methods for fluid materials, had to be omitted, and others reduced in scope, it still proved possible to retain the multi-disciplinary character of the project. The reality was that we would have our hands full with one major theme, namely 'the Biological Treatment of Swine Waste Solids' ie. composting, coupled with some work in the 'Policy and Economics' area.

In this report I want to focus on the composting studies, but first I want to recognize the major role played by Dr. Victor Lo (BIOE) in getting the project off the ground and doing some of the initial research before the rest of us got involved. Unfortunately the funding level did not allow him to pursue some of his interests in biological treatment of fluids separated from the swine wastes.

The role of composting in the general waste-management scheme is shown in the diagram following.

The composting trials have all been at experimental scales, allowing effective monitoring of temperature and moisture. Some future work on micro-reactors is planned with units ≤ 1 litre with an imposed temperature regime. The main goal is to achieve a better understanding of the relationship between the physical conditions, the chemical transformations occurring, and the successive microbial

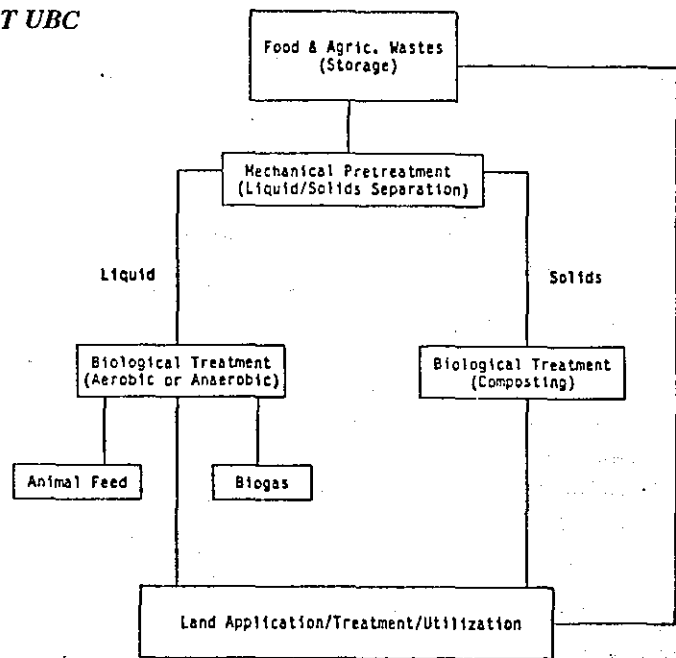


Figure 1. Food & Agricultural Wastes Treatment Alternatives

populations as they change over time. A secondary goal is to establish methods to identify the stages the process has reached and verify product quality. Both bacterial and fungal populations have been examined, with emphasis on the most abundant types. During the course of progressive changes in chemical composition and microbial populations, the biggest contrasts are seen between the thermophilic and mesophilic phases. Chemical changes involve the disappearance of cellulose, lignin, lipids and some nitrogenous materials, and the accumulation of humus fractions. Some phases are associated with particularly rapid changes in levels of ammonium-N, soluble organic acids and electrical conductivity. One aspect of particular importance is the decrease in potential human pathogens. Early results on pathogen control are encouraging, even when thermophilic conditions were of short duration. Method development has been a prominent feature of the work so far, but more definitive results should emerge in 1993.

One of the most satisfying features of the overall project is the contribution of three graduate students; Susan Smith (Soil Science), Alex Dumitrescu (BIOE), and Rita Athwal (Agricultural Economics). The interactions involved, and the regular meeting of the whole group have proved stimulating. This is perhaps an ideal context in which the solver of future environmental problems can get their training.

Lawrence Lowe
Professor,
Department of Soil Science, UBC

16th ANNUAL B.C. SOIL SCIENCE WORKSHOP

SOIL MANAGEMENT EFFECTS ON SOIL AND WATER QUALITY

Thursday and Friday, February 18 and 19, 1993
Room 166 MacMillan Building
University of British Columbia

AGENDA

Thursday, February 18

- 8:30 Opening Address
Ms. Eveline Wolterson, President, Pacific Regional Society of Soil Science
- 8:45 Keynote Address, to be announced
- 9:30 Break

Session 1

- 10:00 Manure and nitrogen management in raspberry production
D.M. Dean, B.J. Zebarth, C.B. Kowalenko, J.W. Paul, and K. Chipperfield
- 10:30 Effects of field management practice on nitrate transfers to tile drains
O. Schmidt, BC Ministry of Agriculture, Food and Fisheries, Abbotsford
- 11:00 Denitrification from manured soils in the Fraser Valley: How important is it?
J.W. Paul and B.J. Zebarth, Agriculture Canada Research Station, Agassiz
- 11:30 Effects of alsike clover/Rhizobium symbiosis on vegetation, Lodgepole pine seedlings, and soil nitrogen
R. Trowbridge, BC Ministry of Forests, Smithers
- 12:00 Luncheon Hosted by PRSSS; Annual General Meeting of PRSSS

Session 2

- 1:30 Remediation of dissolved B-tex by surface application: a prototype field experiment
K. O'Leary, Norecol Environmental Management, Vancouver
- 2:00 Pesticides in Ground Water - Research on the Abbotsford Aquifer, B.C.
B.J. Zebarth, H. Liebscher, B.Hii, G.Grove, and S. Szeto, Agriculture Canada Research Station, Agassiz
- 2:30 Waste water irrigation of a hybrid poplar plantation in Vernon, B.C.
G. Nercessian, Department of Soil Science, UBC
- 3:00 Break

Session 3

- 3:15 Soil loss and runoff measurements on erosion plots under brussels sprouts in the upland area of the Lower Fraser Valley
L.J.P. van Vliet, BC land Resource Unit, Agriculture Canada Research Station, Vancouver
- 3:45 Impacts of biomass harvesting on soil disturbance and surface soil erosion at Sellar Creek in interior British Columbia
P.R. Commandeur and M.E. Walmsley, Forestry Canada, Pacific Forestry Centre, Victoria
- 4:15 Impacts of dispersed and concentrated heavy equipment traffic on forest soil bulk density and aeration porosity
M. Osberg and S. Thompson, Research Branch, BC Ministry of Forests

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Friday, February 19

Session 4

- 9:00 Soils data collection for ecological mapping - the next twenty years
R.E. Maxwell and E.C. Lea, Habitat Inventory Section, Wildlife Branch, BCMOELP,
Victoria
- 9:30 Getting conservation adopted - a discussion of technology transfer and program evaluation
R. Bertrand, BC MAFF, Soils and Engineering Branch, Abbotsford
- 10:00 Break

Session 5

- 10:15 Variability in soil heavy metal and phosphorous concentrations: water quality effects
C.P. Gunter, EVS Consultants, North Vancouver
- 10:45 The effects of fertigation on leaching loss of nutrients in irrigated orchards
G. Nielsen, P. Parchomchuk, D. Nielsen, and L. Herbert, Agriculture Canada,
Summerland Research Station, Summerland
- 11:15 Impacts of organic matter removal and compaction on long term soil productivity
M. Kranabetter, A. MacAdam, et al. BC Ministry of Forests, Prince George, B.C.
- 11:45 Impact of intensive biomass harvesting on sediment production and routing to stream
channels
B. Guy, P. Commandeur, and H. Hamilton, Triton Environmental Consultants Ltd.,
Richmond
- 12:15 Closing Address
Hugh Hamilton, President of the BC Chapter of the Soil and Water Conservation Society
- 12:30 Luncheon, hosted by B.C. Soil and Water Conservation Society, Annual General Meeting
SWCS

For more information please contact:

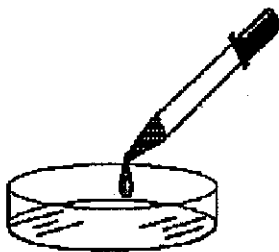
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APPLICATION OF MOLECULAR TECHNIQUES IN FOREST AND AGRICULTURAL SYSTEMS

Since the discovery of the structure of the DNA molecule in 1953, new molecular techniques have revolutionized the study of biological systems, including as those of plants, animals, and microorganisms.

In 1970, enzymes that cleave DNA on specific sites of the molecules were discovered. Such enzymes allow scientists to work more easily with fragments of the DNA molecule. Nowadays, such DNA fragments can be sequenced, amplified and hybridized. Genes isolated from different organisms have been cloned in bacteria and transferred into other living cells, creating transgenic plants or animals.



These powerful molecular techniques are being used extensively by plant breeders, microbiologists, pathologists, environmentalists and especially by medical researchers.

Many of the products of genetically engineered organisms are currently used. For example, human insulin, growth hormones and different types of interferon are produced by recombinant DNA technology.

In the fields of forestry and agriculture, selected clones of crops or trees with the capacity to increase productivity through higher biomass production, resistance to diseases, herbicides, frost, drought or salt tolerance are being engineered.

Bacterial and plant genes involved in nitrogen fixation are currently under study. If the set of essential genes controlling N-fixation can be transferred to non-fixing species, plants such as wheat could eventually obtain their nitrogen from the atmosphere. Interesting questions arise. If the productivity of transgenic plants is higher, will they need larger amounts nutrients? will the soil system be able to supply them? Are we going to use larger amounts of fertilizers?

In soil science, molecular techniques are being used to study soil populations of bacteria, fungi, viruses and nematodes. DNA sequences of soil organisms have been used to make chemically synthesized gene-probes, which can discriminate between the different soil communities. Do you remember the mega-mushroom story reported last April? DNA analysis of mushrooms and rhizomorphs of *Armillaria bulbosa* indicated to be a 37 acre fungus.

Also, genetically engineered microorganisms (GEMs) are being introduced in soil and water ecosystems to degrade contaminants. What is their stability, survival, mobility and overall effect in the indigenous microbial population? Great efforts are being made to produce transgenic plants resistant to bacterial and fungal pathogens. If resistance is not specific, how will these plants interact with rhizosphere growth-promoting bacteria

and mycorrhizal fungi?

In relation to fast advancement of molecular technology, these are only a few of the questions and challenges that soil scientists will have to be able to provide answers for. Understanding of soil bacteria and fungal biodiversity should be a priority.

In order to improve productivity, powerful molecular biology techniques are being used in plant and forest science. It is urgent to make equivalent efforts in soils research institutions, implementing infrastructure that will provide equipment and trained personnel.

Marcia Monreal
PhD Candidate
Department of Soil Science, UBC

NEW UBC COURSE IN SOIL CONTAMINATION AND REMEDIATION

The Soil Science Department at UBC has proposed introduction of a new 3-credit course on Soil Contamination and Remediation. The course description is "Critical review of recent literature and case studies on soil contamination problems, regulatory approaches, remediation standards, and the nature, effectiveness and limitations of remediation methods." If approved by the UBC Senate, the course will be offered in 1993-94.

AWARD-WINNING SEDIMENT AND EROSION CONTROL PROGRAM

The Canadian Home Builders Association (CHBA) awarded the 1992 golden "Georgie" award for Environmental Awareness in Land Use to "Cedarsprings", a townhouse development in Matsqui. Terrasol Environmental Consulting Division, under the direction of Dr. W. W. Carr, serves as environmental consultant and monitor of the project. Terrasol's site-specific sediment and erosion control plan was a condition of project approval by the Department of Fisheries and Oceans (DFO). With the cooperation of all site contractors, this project has succeeded in implementing and maintaining excellent sediment and erosion control measures on-site, to provide full water quality protection. "Cedarsprings" is currently being used as model in the Fraser Valley for other developments, and has now been recognized by both the CHBA and DFO for leading "urban development into a new era of environmental awareness".

NOTES FROM THE REGIONS

Cariboo Region

The Forest Sciences Section of the BC Forest Service in the Cariboo Region is working on a variety of site disturbance and productivity projects. Currently, their biggest project is the establishment of one replicate of a long-term productivity trial. The other replicates are located in the Prince George and Prince Rupert Regions. The study is designed to evaluate the effects of compaction and organic matter removal on long term forest productivity. In addition to basic growth measurements, considerable effort is being devoted to monitoring the condition of the biological community in the forest floor. They are currently refining methodologies for measuring fungal and bacterial biomass, rates of litter comminution, partitioning of the nitrogen pool and other factors. An important part of this work will involve monitoring mycorrhizal fungal population shifts.

Another big project being undertaken in the Cariboo is an evaluation of alternate harvesting methods on high elevation sites. One of the main objectives of the harvesting systems being evaluated is to preserve caribou habitat. The soils group is working in conjunction with other disciplines to try and determine how best to regenerate harvested areas, some of which consists of only very small openings in the canopy. It is anticipated that the small openings may result in cold soils with lower amounts of sunlight. One of the factors that we will be monitoring in the openings is the rate of litter decomposition and the extent and persistence of fungal mats. Some of the openings are small enough that only very small root gaps will be formed after harvesting and the mycorrhizal fungal mats left in these openings could have significant effects on tree regeneration.

At present there aren't many new jobs opening in the region in the area of soil research. However there are some opportunities in the area. Reclamation of blocks severely disturbed during harvesting is a big issue and the region is looking for innovative approaches to dealing with these problems. Conventional approaches have usually consisted of some form of cultivation and seeding of domestic grasses. This type of treatment results in several complications in forested areas such as competition for moisture with seedlings, increased frost damage, introduction of weedy grasses into forested areas and disruption of the forest floor ecosystem. There would be a good opportunity for individuals to do research on reclamation procedures that are more harmonious with forest ecosystems. Another opportunity is in survey of detrimental disturbance caused by harvesting.

Another ongoing area of research involves the question of the root form of planted seedlings and root development in relation to site preparation technique. Last year a trial was established to compare the stability and root form of natural seedlings versus those planted in ripper trenches or in standard hand screefs. A device which they call a topplemeter was developed to measure the force required to topple a tree. the device is quite dissimilar from other approaches tried and has yielded r-squared values of 0.77 in

determining tree stability from factors such as size, presence of taproot and root form. Soil factors were not included at this point and could account for much of the missing variability. This work will be expanded in 1993 to include evaluation of mounding.

One exciting and fun part of Forest Sciences work is their public education program. They are currently building a demonstration site for soil compaction studies near 100 Mile House, very close to the highway. The site will have signs and a circle walk and will demonstrate the effects of harvesting related soil compaction on tree growth. The study site is nestled among some of the Cariboo's beautiful wetlands and it is hoped that the facilities they can be expanded to include rhizotrons and other education and research tools.

Bill Chapman,
BCMF Forest Sciences Section
Cariboo Forest Region, Williams Lake

Nelson Region

The pedologists (M. Curran, G. Davis) of the Nelson Region BCMF Forest Sciences section have been very busy. Research topics have included: characterization of soil disturbance associated with ground based and pushover harvesting (for the control of *Armillaria* root rot); characterization of Mechanical Site Preparation (MSP) soil disturbance; installation of fertilizer screening trials. Time has also been spent in the update and review of the SYTEPREP expert system, developed by M. Curran and M. Johnston as a decision aid to support site preparation decisions. A review of the site sensitivity keys and timber harvesting strategies for Interior sites has also been undertaken in conjunction with other provincial pedologists and experts in other disciplines. Technical support in the provincial Soil Conservation timber harvesting and MSP soil disturbance guidelines and the Forest Practices Code is ongoing. The pedologists also contributed some 'blood, sweat, and tears'; towards the completion of the updated Nelson Forest Region 'ecoguide': *A Field Guide for Site Identification and Interpretation for the Nelson Forest Region*.

New research initiatives (funding pending) in 1993 include: skid road rehabilitation (recontouring) effects on soil properties and tree growth; organic matter and nutrient losses associated with pushover logging; characterization of MSP compaction; collaborative research on the reintroduction of fire into southern ecosystems. An *Armillaria* (Research) working group has also been recently established in the Nelson Forest Region to promote integrated research on silvicultural options in the control of *Armillaria* infected stands.

The Nelson Region Forest Sciences section now includes a formal extension service. Since 1990, the six disciplines in the Forest Sciences section have published 52 publications. A list and/or copies of these publications are

available through Ginny Garner in the Forest Sciences section (Tel: 354-6285).

Gerry Davis, BCMF Forest Sciences
Nelson Forest Region, Nelson

Prince George Region

The Soil Science Program with the Ministry of Forests in Prince George is currently focussed on issues in soil productivity and degradation. Research trials are being implemented which will examine the impacts of soil compaction and organic matter on long-term site productivity. We will be discussing this topic in greater detail at the PRSSS conference in February. The rest of our time is spent coming to grips with living up north!

Marty Kranabetter, BC Forest Service
Prince George Region

NOTES FROM UBC

Who's Where -- 1992 Soils Graduates:

Chuck Bulmer (PhD Soil Science) started in January with Forestry Canada at Prince George.

Bill Chapman (PhD Soil Science) is working as Regional Pedologist for the Ministry of Forests, Cariboo Forest Region and based in Williams Lake.

Xuhui Lee (PhD Soil Science) is continuing work with Andy Black at UBC as a post-doctoral fellow.

Margaret Schmidt (PhD Soil Science) is an Assistant Professor with the Department of Geography, Simon Fraser University at Burnaby.

Jeff Battigelli (MSc Soil Science) is working as a research assistant in the Soil Science Department, based at the Pacific Forestry Centre in Victoria. He is studying the relationship between soil fauna and soil pollutants.

Lawrence Redfern (BSc (Agr) - Soil Science) is continuing his studies at UBC in an MSc program where he is studying the impacts of pushover logging on soils in the Nelson Forest Region.

Inkeri Vaisanen (BSc (Agr) - Soil Science) worked for Pottinger Gaherty Ltd. during the summer of 1992 at Douglas Lake Ranch. She recently returned to BC after a trip to India.

Other News

Dr. Jan de Vries retired from the Soil Science Department in June 1992. Jan has contributed greatly to the teaching program of the department in the area of soil physics and

hydrology. His classroom demonstrations were always exciting and informative. Few who took his class will forget 'Ladner Best' and 'Ladner Worst'. At his retirement party, he entertained everyone with a demonstration of soil hydraulic principles. Jan is currently pursuing other interests, including travel (he has just returned from a four month trip in Eastern and Western Europe) and bicycle touring.

Maureen Christofferson (BSc (Agr) - Soil Science 86) completed her MSc in the Resource Management Science Program at UBC and is now working on water quality criteria and environmental assessment for Inland Waters, Environment Canada, North Vancouver.

Susan Norman (Ames)(MSc (Agr) - Soil Science 1981) was working as a soil science consultant and has returned this January to UBC to start a PhD in the Resource Management Science program with Les Lavkulich in the area of environmental evaluation.

Steve Thompson (BSc (Agr) - Soil Science 82) was working as a research pedologist/consultant in Nelson and has returned this January to the Soil Science Department to start an MSc with Tim Ballard, looking at weathering release of potassium in forest soils.

David Yole (BSc (Agr) - Soil Science 80) returned last September to begin an MSc with Tim Ballard in the Soil Science Department, to study site preparation effects on soils in the Smithers area.

Dr. Janusch Olejnik, from the Poznan Agricultural University, Poland is the Dekaban Scholar in the Soil Science Department this year. He is an agro-climatologist and will be collaborating with Andy Black and Mike Novak.

Dr. Martin Grosjean, from the Department of Physical Geography at the University of Berne, Switzerland started in October as post-doctoral fellow in the Soil Science Department with Hans Schreier and Les Lavkulich. He is studying past climatic changes in the Atacama Desert, Chile.

RECENT PUBLICATIONS

Environmental Guidelines, to support the Code of Agricultural Practice:

Environmental Guidelines for Beef Cattle Producers in BC, BCMAFF, available from Soils and Engineering Branch, Abbotsford

On-Farm Composting Factsheet Series soon to be available from Soils and Engineering Branch

Liebscher, H., Hii, B., and McNaughton, D. 1992. Nitrates and Pesticides in the Abbotsford Aquifer Southwestern British Columbia. Environment Canada, Inland Waters Directorate, North Vancouver, B.C. 83 p.

NEW BOOKS

Modeling Chemical Transport in Soils - Natural and Applied Contaminants. 1992. Edited by H. Ghadiri and C. W. Rose. Lewis Publishers, Boca Raton. 217 p.

This book gives an overview of transport modelling and identifies some features of over 70 computer models used for evaluating erosion and the transport of sediment and dissolved substances. Chapter titles include "An introduction to non-point source modeling", "Sorbed chemical transport modeling", "Modeling contaminant transport in subsurface: theory and computer programs", and "Modeling salt transport in the landscape".

Practical Techniques for Groundwater and Soil Remediation. 1992. By E. K. Nyer. Lewis Publishers, Boca Raton. 214 p.

This book consists of papers on groundwater and soil remediation which were originally published in Groundwater Monitoring Review from 1987 through 1992. The focus is mostly on groundwater remediation, particularly where petroleum, hydrocarbons and other organic materials are involved.

Tim Ballard
Professor,
Department of Soil Science, UBC

UPCOMING EVENTS

Jan. 20 Cover Crops Workshop
Canada, B.C. Soil Conservation Program
and BCMAFF
Langley Conference Centre
Contact Patty Cavalier or Dave
Melnychuk, BCMAFF Tel: 576-5680 Fax:
576-5652

Jan. 29 Composting Workshop and Tour
BC MAFF, Soils and Engineering Branch
and Agriculture Canada, Agassiz Research
Station
King Training and Conference Centre
Contact Deborah Nikkel 852-5363, Soils
and Engineering Branch

Feb. 3 - 5 Lower Mainland Horticultural
Improvement Association (Growers Short
Course), Matsqui Ag-Rec Centre Contact:
BCMAFF Abbotsford Office 852-5211

Feb. 9 & 10 Dairy Short Course (SCDEC)
Matsqui Ag-Rec Centre
Contact: BCMAFF Abbotsford Office
852-5211

Mar. 11-13 BC Institute of Agrologists Annual
Meeting, Chilliwack

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c/o Department of Soil Science
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