Manual to Water and Drainage Education Programs

David Young

Produced and Funded by
The Centre for Drainage Studies

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Table of Contents

Introduction

This manual is designed to accompany the Water and Drainage Education Programs produced for The Centre for Drainage Studies. The manual is divided into 3 sections. The first section includes information on 'Production Completed Programs.' These education programs have been edited into a format that can be readily utilized. There are credit blocks at the beginning and the end of each program. The credit block identifies the tape. It includes an acknowledgement for The Centre for Drainage Studies, a title block stating the program's contents and a closing summary informing the viewer of how to contact the Centre for additional information. Each program in this section is listed with an abstract, technical data specifications, general quality of the recording and concepts covered. With these reference tags the programs are easy to use and cover a broad range of topics. They are a valuable source of audiovisual technical information taking the viewer from Pakistan to Alberta irrigation districts.

The programs in Section 2 have not been edited into a structured user-friendly format as the tapes in Section 1 were. This section is labeled 'Production Incomplete Programs.' Unlike the production completed programs these programs have no opening or closing credits for The Centre for Drainage Studies. There are no title blocks informing the viewer of program topic. This means that there is no separation between topics. Without these reference tags and indicators of tape content difficulties arise in the ease and speed with which a tape topic may be selected and viewed. There are three full tapes that fall into this category. The most valuable and structured programs are identified with an asterisk in the table of contents for 'Production Incomplete Programs' and also in its accompanying 'Time Log' table. The sections that are not marked with an asterisk have footage that is indeed valuable but is generally not structured at all. The asterisked sections primarily have Dr. Broughton, Director of The Centre for Drainage Studies, giving a quick talk on the subject featured. Other experts featured include a soil core driller in a short informative program on taking core samples. Another is Mr. Brent Paterson M.Sc., P.Ag. from the Drainage Branch, Irrigation and Conservation Branch of Alberta Agriculture. He delivers an interesting talk on the sub-surface drainage desalinization research project on Bow Island. Mr. Paterson and Dr. Broughton also team up for a captivating discussion on Waterton Falls and the surrounding watershed drainage.

The third section has been included to facilitate the future production of videotape recordings with as much ease and efficiency as possible. It has recommendations for preparations to be made before taping begins, suggestions for tape-recording procedures and concludes with follow-up production techniques.

Section 1

Production Completed Programs

Contents

Section 1: Production Completed Programs

Program 1

Guelph Permeameter Demonstration

Specifications
Tape#1
Length: 15:00 minutes
Location on tape: 0 + 2:00 minutes
Format: Blocked in with opening and
closing credits
Quality: Very good second generation;
unedited original first generation
a possible alternative.

Concepts
-field saturated hydraulic conductivity
-matric potential
-infiltrometry
-steady state
-slit irrigation

This colourful and professional demonstration of the use of the Guelph Permeameter is given by Stewart Sweeney. Mr. Sweeney was a graduate student from the University of Waterloo, whose research involved the extensive use of this infiltrometer. In the program many versions are discussed and demonstrated. Its history and development as well as its useages are explored. Field saturated hydraulic conductivities are measured using this instrument. However, Mr. Sweeney takes it one step further in stating that the matric potential of the soil can also be measured. Ease of assembly, ease of operation, mobility, weight, limited water consumption, accuracy and adaptabilty to different soils are some of the topics discussed in this program.

Program 2

Centre Pivot Irrigation Systems

Specifications
Tape#1
Length: 55:00 minutes
Location on tape: 0 + 20:00 minutes
Format: Blocked in; opening and closing credits for the Centre for Drainage Studies
Quality: second generation; slide show with the first few minutes out of focus. Unedited original first generation a possible alternative.

Concepts
-uniformity constants
-economics
-crop application
-design development
-coverage patterns

This program is a slide/lecture given by Mr. Len Ring P.Eng. Mr. Ring is a professional agricultural engineer and president of Ring Irrigation Consultants. His lecture takes us through the development, introduction and useage of centre pivot irrigation systems in Alberta and throughout the world. Uniformity of water distribution on the crop is analyzed. This is backed by his own research into distribution efficiencies and problems with common methods of data collection; ie., can tests. The centre pivot's suitability to different crops, soils, topography, climates and its unsuitability to places such as California is summarized. The different drive systems are visually investigated and compared; ie., electric vs. oil vs. water drives. Other topics include installation of 3-phase power sources, tires, worm gears, ruts, disc-fillers, endgun operation and radio operated corner coverage. Low pressure vs. high pressure systems; nozzles vs. sprinklers vs. drop tubes; low angle vs. high angle on sprinkler heads. Mr. Ring ends the program by showing us a few slides on possible problems with the centre pivot systems and how to avoid them. The program is a very complete and quick overview of centre pivot irrigation systems in the world today.

Program 3

Water and Drainage Management Lecture# 1

Specifications
Tape #2
Length: 45:00 minutes
Location on tape: 0 + 4:00 minutes
Format: blocked in; Opening and closing credits
Quality: first generation; mostly slides; good to very good quality

Concepts
- -irrigation and drainage harmony
- -soil water storage
- -total water management
- -ideal drain depth
- -matric potential

Mr. Eugene 'Red' Doering P.Eng. is the lecturer featured in this program. Mr. Doering is an USDA researcher at the Mandan research station. In this capacity he has been and is involved extensively in a great deal of research. In program 3 he details one of his research projects. The step by step construction of the 72 lysimeters required for the experiment is outlined. His objectives for the project were 1)determine the internal drainage for fine textured soils; 2) follow water movement with associated irrigation; 3)determine levels of salt accumulation and/or its movement; 4)check nitrogen translocation and uptake with corn; 5)develop a total water management system for irrigation agriculture with a minimum of horizontal drainage and 6)check fracture patterns in glacial soils determining their importance in drainage. To carry out this experiment Red utilized monolithic, 2.5 x 2.5 metre, lysimeters. His presentation covers the problems and success of the lysimeter's use. The data collected from this project is presented, analyzed and discussed in detail.

Program 4

Mardan SCARP Project

Specifications
Tape #2
Length: 45:00 minutes
Location on tape: 0 + 60:00 minutes
Format: blocked in; opening and
closing credits.
Quality: mixed; first 10:00 minutes the
overhead projector is used and
is not 100% clear; second section
is a slide presentation which is
clear and enjoyable to watch;
first generation.

Concepts
-drain design
-drain installation supervision
-third world development
-intensive farming
-cultural differences

This program spotlights Mr. John Metzger's experiences on the Mardan SCARP project in Pakistan. Mr. Metzger P.Eng. is an agricultural engineering consultant and in this capacity was reponsible for the training of contractors and engineers involved in this 80,000 acre sub-surface drainage project. Two sections of his work are discussed. The first is The Design Process which includes a)establishing basic survey control; b)defining design sub-areas; c)carrying out a topographic survey using a total station; d)preliminary design; e)verification of the design field layout of conceptual design; f)performance of collector profile survey; g)adjustment of base map for final design layout; h)design drain system; i)layout reference data and finally j)the issuance of construction drawings. The second section of John Metzger's talk is The Supervision of Subdrain Construction. This section includes a)pre-construction activities such as right-of-way and irrigation close, construction drainway, construction surveys; b)clearing; c)supply of construction materials: PVC tubing, the graded gravel envelope and fabric envelope; d)drain installation for grade and depth, gravel envelope, backfilling and compaction; e)restoration of the land to a state similar to prior to construction; f)construction of related projects; ie.,outlet structures, road allowances, manholes, canal structures, water courses, etc.

Program 5

Water and Drainage Management Lecture #2

Specifications
Tape# 3
Length: 50:00 minutes
Location on tape: 0 + 4:00 minutes
Format: blocked in; opening
and closing credits
Quality: first generation; good quality;
lecture consists mostly of slides
with 5 minutes use of overhead
projector that is not 100% clear.

Concepts
-optimum farm production
-water holding capacities
-nitrogen budget relations
-shallow vs. deep drainage
-arid vs. non-arid drainage
-Donnan equation

Program 5 has Mr. Eugene 'Red' Doering P.Eng., USDA researcher, speaking in his second lecture in the series. The first lecture dealt with glacial till soils whereas this lecture is predominantly concerned with shallow sandy soils. As before he outlines the research that he has done in determining optimum production of these sandy soils. Optimum production is the key concept that Mr. Doering stresses. Optimum vs. the maximum production techniques that are often employed. For this research experiment he built twelve 8' x 16' lysimeters for which he details the problems they had in their construction and as before the successes they had in their operation. Data was collected on dry matter yield with four different irrigation rates and correlated against depth to water table. It was evident that maximum yield was similar for different irrigation levels within the same depth to water table range. Doering concludes that many farmers are wasting water by over-irrigating. Secondly, he concludes that with some soils with water tables at a metre depth the farmer can probably do without irrigation.

Program 6

Design of Interceptor Drains and Cutoff Curtains

Specifications
Tape #3
Length: 40:00 minutes
Location on tape: 0 + 80:00 minutes
Format: blocked in; opening and
closing credits
Quality: fair to good; first generation;
the 10 minutes use of the overhead
projector is fair in quality;
majority of lecture is with slides
and the quality is good.

Concepts
-canal leakage
-flow-net
-drain spacings
-sweet water salvage
-appropriate technology

The Director of The Centre for Drainage Studies, Dr. Robert Broughton, gives a slide/lecture in this program. In the program Broughton outlines which parameters must be identified when designing interceptor drains and cutoff curtains in conjunction with watercourses. Firstly, the boundary conditions must be determined. These include 1) the depth to impermeable layer and 2)the watertable level. Next a flow-net must be drawn either digitally, graphically or using CAD software. Dr. Broughton then gives a real-life example by showing what work was done to improve the CHASHMA Right Bank Canal in Pakistan. Methods of estimating the volume of sweet water leakage with different types of canal structures are explained. Maintenance and recommendations for the incorporation of pump stations is covered. It is important to intercept sweet water canal leakage while it is still sweet so that it can be pumped back into the canal for use downstream. Leakage will turn valuable farmland into untillable swamps; this land can be reclaimed. Work on canals includes improvment of canal linings to reduce leakage, use of GEO fabrics in pump stations, installation of clean-outs and the reduction of sand content in the canal flow.

Program 7

Sub-surface Drainage Installation at The
Ile-Perrot Golf Course

Specifications
Tape #4
Length: 30:00 minutes
Location on tape: 0 + 3:00
Format: Blocked in; opening and
closing credits.
Quality: Second generation; good quality;
all field shots on a beautiful
sunny summer day.

Concepts
-surface water removal
-drain spacing
-hydraulic conductivity
-soil compaction
-erosion
-slit drainage

The Director of The Centre for Drainage Studies, Dr. Robert Broughton, is the narrator for this technical program on the installation of sub-surface drainage at the Ile-Perrot golf course. This specialized utilization of sub-surface drainage to quickly remove excess surface water is a new and experimental technology to Canada. Marcel Poirier has graciously allowed us to tape his drainage installation machinery in operation. In the program Dr. Broughton explains the whole of the drainage installation operation, from start to finish; step by step. Areas covered include a)perforated plastic pipe, its role, specifications,construction and installation; b)collector, installation, connection to laterals, construction and its role; c)trencher and all of its component parts; d)gravel chute; e)gravel wagon and the gravel grade selected; f)waste soil wagon; g)turf tires; h)laser activated hydraulic lift; ie., the Laserplane system; i)gravel envelope; j)fabric envelope; k)compaction; l)restoration of the land; m)lateral and collector layout design; n)outlet structures and o)overall benefits.

Program 8

Old Man River Dam Project

Specifications
Tape #5
Length: 15:00 minutes
Location on tape: 0 + 3:00 minutes
Format: blocked in; opening and closing credits
Quality: good to very good; first generation with second generation inserts; all shot outside on location.

Concepts
- -water storage
- -irrigation
- -seepage
- -flood control
- -agricultural development

Mr. Jim Bester P.Eng.,of UMA Consultants, is the resident engineer for the Old Man River Dam Project and is the guest for this dynamic program. Dr. Broughton questions Mr. Bester on many aspects of the dam with the actual dam, in the early stages of its construction, as a backdrop. Questions range from the selection of location to construction procedures. On this sunny southern Alberta day Bester explains that core samples are being taken to predict the effect that the compressive force of the dam will have on the surrounding land. Broughton questions on the hydraulic drag on the water coming off the flipbucket and the purpose of the plunge pool. Coffer dams, diversion tunnels, power generation, benefits to the farmers and the mega-project's completion schedule are just a few of the many interesting things discussed by these two professional engineers.

Program 9
GTX 5000 Drawing Processor Demonstration

Specifications
Tape #6
Length: 12:00 minutes
Location on tape: 0 + 3:00 minutes
Format: blocked in; opening and closing credits
Quality: first generation; good quality

Concepts
- -drawing processing
- -data conversion
- -raster
- -land information systems
- -pattern recognition

Mr. David Penton P.Eng.is president of Ghost River Computing. This program features Mr. Penton in a clear demonstration of the capabilities of the GTX 5000 Drawing Processor. This is a scanning data conversion service that will take a hardcopy engineering drawing and convert them to intelligent electronic databases. The scanning machine captures the data in a snapshot form called a 'Raster' in the recognition module. The processing module is a parallel processing computing unit and converts the information to vector form. The information is now in an interactive medium and can be easily edited on the computer screen.

Program 10

Draining Slough Areas Using Sub-surface Drainage

Specifications
Tape #7
Length: 25:00 minutes
Location on tape: 0 + 25:00 minutes
Format: not blocked in; no indicators of module selection; speaker is introduced by Mr. Brent Patterson
Quality: first generation; first 25 minutes is good as it is all slides; second section the overhead projector is used and the quality reduced.

Concepts
- -Jensen inlet
- -Hickenbottom modifications
- -watershed volume predictions
- -slough development

The President of Jensen Engineering is a pioneer in the use of sub-surface drains for the draining of surface water. This program is a slide/lecture presentation by Mr. Eric Jensen P.Eng. who is that pioneer. The lecture includes his most recent research and development work applied to draining slough areas of northern Alberta. Sloughs create many problems. Land is lost, labor increases and the efficiency of farming is reduced. Often newly irrigated sections of land also develop into sloughs making the land unstable and unusable. Sloughs are often composed of organic matter. This material acts as an insulation and the areas remain frozen for a longer period in the spring, complicating their drainage. Mr. Jensen details how they have overcome this and many other problems with the development of the Jensen inlet. This is a Hickenbottom inlet that has a float and adjustable height inlet modification. The modifications eliminated the problem of the inlet freezing up in the springtime. Jensen Engineering have also developed computer software to predict the size of the watershed that is draining into the slough. Knowing this volume of water enables the collector/lateral sizes to be accurately selected.

Section 2

Production Incomplete Programs

Section 2: Production Incomplete Programs
Time Log

Prog. ##	Tape ##		Title	Log Time (hour:min)	Length (min)
11	5		Old Man River Dam Project: The Lower Levels	0:15	15
12	5		Lunch with International Drainage Group: soccer, etc.	0:30	5
13	5	*	Lethbridge Northern Irrigation Canal: radial gates, head regulators, cable-car metering with Dr. Broughton	0:35	13
14	5	*	Canal Leakage, Salinity problems, and Field Reclamation with Dr. Broughton	0:48	7
15	5		Sideroll Irrigation System with Len Ring	0:55	11
16	5		Centre Pivot Irrigation System in the Field with Len Ring	1:06	12
17	5		L.C.C. Residences: Soccer	1:18	3
18	7		Egyptian Participants at the West Edmonton Mall	0:00	16
19	7		Soil Analysis	0:16	9
20	7		Computer Modelling of Watershed Drainage Areas for Slough Development	0:45	15
21	8	*	St. Mary's Irrigation Canal and Pump Station with Dr. Broughton	0:00	30
22	8		L.C.C. International Land Drainage Badminton and Soccer Game	0:30	5
23	8	*	Soil Coring Demonstration	0:35	37
24	8	*	St. Mary's Dam, Reservoir, Flipbucket and Siphon Talk (part 1) given by Dr. Broughton	1:12	38
25	9	*	St. Mary's Canal Siphon (part 2)	0:00	3

Section 2: Production Incomplete Programs
Log Times

Prog. ##	Tape ##		Title	Log Time (hour:min)	Length (min)
26	9	*	Watershed Drainage Through Waterton Falls with Brent Patterson and Bob Broughton	0:03	3
27	9	*	Sideroll Irrigation Systems in the Field with Dr. Broughton and co.	0:06	40
28	9		International Land Drainage B.B.Q. in Lethbridge	0:46	8
29	9	*	Centre Pivot Irrigation Systems Lecture with Len Ring (original)	0:54	55
30	10		Lettuce Planting Operation	0:00	7
31	10	*	Sub-Surface Drainage Contractor in Operation	0:07	9
32	10		Drainage Ditches, Trash Racks and a Pump Station	0:16	12
33	10		CORMA Drainage Pipe Manufacturer	0:28	6
34	10		McRae's Farm: Sub-Surface Drainage/Irrigation System	0:34	20
35	10		OMAF Soil Erosion Control Project with Glen Slater	0:54	20
36	10	*	Hickenbottom Demonstration	1:14	4
37	10		Flow Measuring Devices at the Ormstown Project	1:18	2
38	10		Soulange Canal with Dr. Broughton	1:20	10
39	10		Pump Station in Operation on the Roda Farm	1:30	10
40	11		Grading Stakes Layout	0:00	5
41	11		CSAE Conference Dinner	0:05	2
42	11		Rocky Mountain Bus Drive	0:07	8
43	11	*	Lake Louise with Mohammed Ali	0:15	16

Production Incomplete Programs
Log Times

Prog. ##	Tape ##		Title	Log Time (hour:min)	Length (min)
44	11		Banff/Banff Springs Hotel	0:31	27
45	11	*	Guelph Permeameter Demonstration (original)	0:58	20
46	11		Water Table Level Measurements	1:18	9
47	11	*	Ag Canada Sub-Surface Drainage Project with Brent Patterson	1:25	25
48	12	*	Haying Operations: Rake, Self-loading wagon and Square Baler	0:00	30
49	12	*	Sub-Surface Drainage Installation at the Ile-Perrot Golf Course (original, uncut version)	0:30	60
50	13	*	Haylage Operations:Discbind, Wagons,Blowers and Silos	0:15	30
51	14		SNC Dinner and B.B.Q. with Egyptian Participants at Gordon Gerry's Home in Edmonton	0:30	60
52	15		International Land Drainage Graduation Dinner in Lethbridge, Alberta	0:00	120

Section 3

Recommendations for The Future Production of Videotape Education Programs

Recommendations for The Future Production of
Educational Videotape Programs

In these recommendations for videotape recording I hope to save the next person who makes videotapes many of the mistakes I made. Many of the problems I encountered could be avoided. This would increase efficiency of the operation and improve the quality of the final product.

First of all it is important to practice using the videotape camera (camcorder) under many different lighting and taping situations. For the latter I mean at times the camcorder is used while on the shoulder; times its used on a tripod and times when wideangle should be used perhaps while riding in the back of a moving vehicle. Get familiar with the use of all of the audiovisual equipment including microphones, lights, etc. Light is fundamental. Lots of light - as much as possible. The best programs are produced outside on beautiful sunny days. Get to know the individuals who are involved in the medium. People in the audiovisual departments here at McGill are very friendly and interested in assisting new projects. Some are found in the Instructional Communications Centre(I.C.C.) at the downtown campus of McGill University. This is where the recording equipment is signed out at no charge if the equipment is to be used for an accredited course. The people there are very good at their jobs, having a great deal of experience in the production of professional videotapes. In particular Mr. Mario Di Paulo, T.V. & Sound Production Head, is very approachable and a valuable source for assistance. Mario can be contacted at I.C.C.; 505 Sherbrooke Street West, suite 400, phone 398-7200. Another person you should know is Mr.John Marrett. John is the Macdonald College I.C.C. technician and coordinator. Again, John is approachable and also has a great deal of experience with the audiovisual medium.

The most important concepts to keep clear are: 1)objectives and 2)format. The questions, "What will the tape be used for and how will it be used?", should be answered before starting. The VHS 1/2" videotape is an easy to use and powerful tool but it has its limitations. The first, original taping is by far and away the very best in visual as well as audio quality. This is called the first generation. All efforts should be directed towards making the original tape the final product program. The second generation, the first copy, and/or edited version, is generally acceptable in quality but nonetheless there is a noticeable deterioration in quality. The third generation is not acceptable quality. The third generation is of little or no use. This means that if a tape is to be produced of sections, ie., inserts from a larger work tape then the final product, the second generation edited tape cannot be copied or duplicated to give to a third party. The solution to the quality problem can be solved by taking one of two possible paths.

One option is to plan the whole of the project in advance. Know what you want as the production of tapes consumes a great deal

of time. Planning will save a lot of time. Get the objectives clear- can't shoot everything. It is not easy or desirable to say that the excess material can be edited out later. This means scripting out the program. If necessary, the audio portion can be dubbed later but a rough scene log should be made in advance. For an example of this refer to Zettl's Television Handbook(1968). In the chapter on producing and directing(page 441) there are examples of logged scripts. Here is a short example.

scene/segment	stopwatch time (minutes)
opening	0:00
credits	5:00
front of tractor	6:10
shot of narrator	8:20

This book by Zettl(1968) and a second by Pincus(1969) are bibles of the audiovisual industry. They make interesting and worthwhile reading that will save the cameraman time and frustration. They will also improve the final product. At the beginning of the tape it is important to tape solid black for a half minute or so. This is standard for the beginning of videotapes. One, it looks better than snow or glitches. Two, it enables the insertion of another shot at the beginning of the program. An insertion might be the credit block for the Centre for Drainage Studies and accompanying title of the following program. The third reason to tape black at the beginning of the tape is to avoid problems caused by track breakage. The audiovisual tape is made up of four tracks: 2 audio, 1 visual and 1 control track. Problems of track breakage often occur at the beginning of a tape and at new edits. With one of the tracks broken it is impossible to transfer information onto, from or around the broken section. This causes irreparable damage and inconvenience. To help avoid this problem every new tape should be fast-forwarded from start to finish at least once, preferably twice. This loosens up the tape and helps avoid track breakage.

When taping it is possible to watch your previously recorded scene through the viewfinder of the camcorder and select the exact location for the beginning of the next shot. This is referred to as field-assembly editing yielding a high quality first generation tape. Often though it is desirable to have shots from another location and/or time included, inserted into the first program. Ideally these inserted shots should be taken on a separate tape. This way the insert shot quality is only reduced to second generation as opposed to a poor third generation if the desired insert shots are on the same tape. For an example of what is desirable to avoid refer to Program 8: "The Old Man River Dam Project." The diversion tunnels are third generation and their quality is noticeably poorer. If you are stuck with using third generation inserts then keep them short in duration. It is desirable to keep the whole program as short and as fast paced as possible. A two second shot can sometimes be a very long time to watch.

When it comes to editing the tapes into programs that can be used for educational purposes planning ahead is important. Again make a time log of all the scenes on all the tapes that will have input into the final program tape. Knowing the time facilitates fast, efficient editing. Not knowing the exact location of needed scenes from a work tape quickly consumes large quantities of time in searching for the desired scene. A time log can be made using any VHS player and a stopwatch. The editing can be done at 505 Sherbrooke Street West, suite 400 in Montreal at I.C.C. Productions. There, they will give a demonstration of the operation of the A500 Panasonic VHS editing machines. The best time to edit at these facilities is the summer and the early fall. Towards the end of the term students doing their projects often have the editing studio booked and it is difficult to get time. Other possible locations for VHS editing are the McGill English Department, the Education Department and Mr. Mike Turner's studio at John Abbott College. Mr. Turner charges $18.00/hour for the use of his machines whereas the other locations are McGill operated and there is no charge if it can be shown that the work is for an accredited McGill course.

Another option to produce a high quality final program tape is to have I.C.C. Productions produce the whole of the project. This option has its drawbacks and benefits. This alternative is costly. I.C.C. Productions use 1" videotape to shoot their programs. One of these tapes costs $150.00. The total cost of producing a 10-20 minute program would generally cost in the neighborhood of $300-$400. These costs vary depending on the level of special effects that are incorporated. Special effects may include use of slides, split images, sub-title generation, merging of pictures, etc. It is important to get an estimate of the final cost of the product in advance to work beginning. I.C.C. Productions do not charge at all for their labor but they do charge for materials which as outlined above can be substantial. Depending on the importance of the project tape it may very well be worth having the professionals from I.C.C. Productions produce the program. The people there produce a high quality product. and are surprisingly available. They are flexible and make every effort to shoot the tape when it is convenient and feasible for the client. The bottom line is that their working medium is 1" but Macdonald College predominantly uses 1/2" VHS tape. This means that I.C.C.'s produced 1" tape (final product) must be duplicated from 1" to 1/2". Again there is a loss of quality but the final product would still be very good. This also means that 1/2" tapes can be duplicated from the master 1" for information circulation/additional duplicates with no loss in quality.

In closing, John Marrett has made some recommendations for the purchase of equipment required for the production of videotape recordings here in The Centre for Drainage Studies. The list is on the following page. John has made some good points. One major point being that it would be logical to purchase the same equipment that is being used by McGill University as a whole. The benefits are twofold. Firstly, if the equipment should ever need repair or maintenance then the technicians at I.C.C. have the resources to do so. Also, the service rate for McGill technicians is considerably

Macdonald Campus of McGill University

Faculty of Agriculture | Faculté d'Agriculture

INTER-DEPARTMENTAL MEMORANDUM

DATE: 87.11.30

TO: Prof. R. Broughton,
Dept. of Ag. Engineering

FROM: John K. Marrett,
I. C. C.

SUBJECT: Video Equipment Quotation

As requested, I have listed below approximate prices for the equipment required to produce video recordings in the VHS format. If you have any further questions, please don't hesitate to call me.

-JKM

VHS Camcorder: GE 9806	$ 1450
Case for Camcorder	100
Extra Batteries	70
14" Sony Colour Receiver	500
Mannfrotto 144 Basic Tripod	75
Mannfrotto 128 Mini Video Head	69
FM Microphone : Lavalier type	850
Handheld type	950

- these are the minimum prices. The final price will depend upon the particular microphone chosen.

Lighting Kit: Ianiro Economy Kit	900

- 3 lights, Mannfrotto Pro stands, carrying case

Ianiro Deluxe Kit	1125

- same as Economy Kit but includes Accessory Holder, Barn Doors & Mannfrotto Maxi stands

Bulbs - price depends upon particular bulbs chosen: their power, lifespan, etc.	50

- lighting kits are delivered without bulbs

- Deluxe Kit is preferable as the stand is of better quality and Barn Doors are a virtual necessity for controlling the light

c.c. David Young

more economical than repair rates in the private sector; ie., $18.00/hour vs. $40.00/hour. Secondly, should all the peripheral equipment recommended by John not be bought at this time the missing pieces can be signed out on a temporary basis and they would be compatible. The camcorder with case and batteries is the most important piece of equipment required at this time. The current arrangement of signing the equipment out from the downtown campus is not satisfactory as it leads to delays and lost opportunities.

I wish the next individual who is fortunate enough to be involved in the production of educational videotape programs the very best of luck.

David Young
Agricultural Engineering
Summmer 1987

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