Meat Scientists Using Video Tapes To Work Smarter, Not Harder

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The idea of using video as an instructional aid on many specific topics is not new. Instructional video tapes (VT) were introduced soon after the first home video recorder was demonstrated in June, 1963. Instructional VT add variety, transmit information in a time and cost-efficient manner, provide individual training and bring new resources/experts to the classroom. VT are widely used in medical science. Over 1000 VT are available in nursing for routine demonstrations, teaching and research. Personnel in meat science at 53 universities were sent letters requesting information about the use of meat science VT. Shown in Table 1 is a list of 33 VT which have been made by meat scientists and used for teaching (26), research (3) and public service (4).

Evaluation of Video Tapes

An evaluation of the VT's currently available for use by meat scientists reveals a need for tapes in some specific areas including: curing and smoking of meat, sausage manufacture, meat research techniques, meat inspection, by-products of the meat industry and research results. The problem with VT is the time and expense required to produce a completely edited master tape. Meat scientists do not have enough time and training to be an expert in all areas, and yet provide quality training to each undergraduate and graduate student. We as AMSA members need to share the responsibility of making various new VT in areas of need. Possibly a central location for VT, such as the National Live Stock and Meat Board, could be established. We believe this subject should be addressed by the AMSA executive board.

Because meat scientists are already overextended in teaching, research and extension, it becomes increasingly more difficult to provide quality training to each student. The purposes of today's session on VT are to determine:

1) the availability of meat science VT
2) application to meat science research
3) application to meat science teaching
4) application to public service
5) how to make a VT

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VT Applications to Meat Science

A viewing of a 25-min VT, incorporating excerpts from contributed tapes, demonstrated applications of video to research, teaching and extension. The first segment of the VT showed specific applications to research. These were:

1. How to conduct a computer search of the literature.
2. Sampling and proximate analyses of meat products to demonstrate routine experimental procedures (VT 10, Table 1).
3. Electrical stimulation of a beef carcass to show action (VT 28, Table 1).
4. Drawing information together from a number of sources to illustrate continuity and results of research efforts (VT 29, Table 1).
5. Presentation of a unique research study for future reference and/or as a final oral exam for a graduate student.
6. As a meat science research project report (VT 27, Table 1).

After viewing these six applications, a 2-min VT of a Texas Tech research report was shown to demonstrate the use of VT for publicizing newsworthy research findings applicable to both local and regional audiences.

Teaching Applications

A second segment of the VT demonstrated some of the applications of VT to teaching. The following examples showed:

1. A process that cannot be easily replicated (VT 12, Table 1).
2. A method to bring a new dimension to the classroom. A VT on the anatomical location and structure of the alimentary canal and accessory organs was shown (VT 11, Table 1).
3. How to operate a machine and maintain equipment.
4. Individualized instruction on identification of meat cuts, processing methods, slaughter techniques and beef yield and quality grading (VT's 3, 6, 15, 18, 20, 22, 28, Table 1).

Table 1. Meat Science Related Video Tapes Available for Teaching, Research and Public Service

Tape No.	Title	Length (min)	School/ Organization
	TEACHING TAPES		
1	Beef Slaughter	50	Univ. of NE[a]
2	Pork Slaughter	28	Univ. of NE[a]
3	Lamb Slaughter	36	Univ. of NE[a]
4	Beef Cutting – Forequarter	55	Univ. of NE[a]
5	Beef Cutting – Hindquarter	55	Univ. of NE[a]
6	Pork Cutting	24	Univ. of NE[a]
7	Lamb Cutting	60	Univ. of NE[a]
8	Poultry Slaughter	25	Univ. of NE[a]
9	Poultry Cutting	10	Univ. of NE[a]
10	Proximate Analysis	55	Univ of WI[b]
11	Visceral Anatomy	41	Univ of WI[b]
12	Muscle Anatomy	31	Univ of WI[b]
13	Beef Retail Cuts ID	43	Texas Tech[c]
14	Beef Judging	56	Texas Tech[c]
15	Pork Judging and Retail ID	58	Texas Tech[c]
16	Lamb Carcass Judging and ID	47	Texas Tech[c]
17	Fundamental Beef Quality Grading	43	Texas Tech[c]
18	Advanced Beef Quality Grading	36	Texas Tech[c]
19	Fundamental Beef Yield Grading	50	Texas Tech[c]
20	Advanced Beef Yield Grading	39	Texas Tech[c]
21	Cattle Slaughtering	20 est	US Army Vet. Corp.
22	Beef Carcass Fabrication	25	VPI
23	Beef IMPS (3 tapes)	180	Miss. State U
24	Pork IMPS (3 tapes)	90	Miss. State U
25	USDA Beef Grades, Your Guide to Beef Quality	8	USDA
26	Modern Cattle Hide Procedures	18	US Hide, Skin & Leather A
	RESEARCH TAPES		
27	Bacon-Nitrosamine	5	Mich State U
28	Electrical Stimulation & Hot Boning of Beef	8	KSU
29	Carcass Car Wash	6.5	Univ. MO
	PUBLIC SERVICE AND OTHER TAPES		
30	Don't Be Fooled By Bait and Switch Freezer Meat Ads	15 est	AAMP
31	USDA Meat Graders and Their Duties	25	USDA
32	Meat Scientists Using Microcomputers to Work Smarter Not Harder	14	Texas Tech[d]
33	Meat Scientists Using Video Tapes to Work Smarter Not Harder	26	Texas Tech[d]

[a] Video tapes (VT) 1-9 can be ordered from V.T. Miller, CCTV, University Television, 335 Telc., Univ. of NE, Lincoln, NE 68583.

[b] VT 10-12 can be ordered from Gregory Minnix, Inst. Media Center, 142 Education Science Bldg., Univ. of WI-Madison, WI 53706.

[c] VT 13-20 can be ordered from Video/Instructional Aids, Box 396, Rt. 2, Lubbock, TX 79415.

[d] VT 32-33 can be ordered from KTXT-TV Station, Texas Tech University, Lubbock, TX 79409, ATTN: Fred McClung or Liz Johnson.

Table 2. Equipment Costs for VT-Related Work

	Type of system	
Item	*VHS, $*	*U-Matic, $*
Camera	1200	4000
Recorder	750	3000
Light kit	700	700
Tripod	200	200
Other accessories	300	500
Total	$3150	$8400

Public Service Applications

A third segment of the VT illustrated some applications of video to public service. Examples of the uses for extension were:

1. Consumer education (VT 30, Table 1).
2. Faculty recruitment.
3. Invitation to a national meeting.
4. Career opportunities for students.
5. Recording an important event in the history of your institution or to capture comments from a distinguished visitor.

Video Tape Production

The final segment of the VT showed how to produce a tape for a meat science subject. First, consult your university reference librarian and your colleagues to learn if tapes are available on the subject in question. If this subject has been produced on video, it probably is available to you at a lower cost than producing an original. If the tape is not available, develop an outline of your idea. Then acquire the assistance of support personnel in your campus media center to develop an audio and video script. Next, develop a shooting schedule. After you have written your script, have it edited and improved.

First, record the narrative, giving special emphasis to microphone technique. Subsequently, produce the video. It is important to note that effective use of music will add immeasurably to the quality of the tape. If music is to be used, a precautionary step is to be certain that clear copyright has been obtained for music use.

Editing of the tape now must take place with the assistance of a professional tape editor. This is a painful process, which will take about 5 to 10 min working time per 1 min of completed tape. In summary, making a VT requires a large block of time – so allow sufficient time for quality workmanship.

Discussion

Question: Is there a catalogue of VT's available in other libraries?

Davis: Yes. Some media libraries have a record of them and can conduct a computer search. Texas Tech University Health Sciences Library has an inter-library loan program.

Question: Why do differences in color exist in VT's?

Davis: No exact answers are available, but to have color quality one does not need to use filters. Some recommendations are: 1) Use proper lighting so that subjects are lighted well; 2) Avoid very light backgrounds; 3) Do not use inexpensive cameras as they are not discriminating; 4) Use a properly adjusted camera.

Question: Is there tape stock available to show proper color on VT?

Davis: Yes. Use professional grade VT stock coupled with proper adjustment of camera (light balance and color correctness of camera).

Question: How do you overcome difficulties of camera operation in coolers?

Davis: Insulate equipment with towels, as below 40°F temperature causes an adverse effect on equipment. Heat will also be provided by lights used for subject illumination. Condensation is another problem.

Question: Is VT effectively used at the county level?

Davis: I have mixed reactions; some counties do not have compatible equipment.

Question: What are the costs for equipment?

Davis: Three-quarter inch U-Matic tapes are more expensive ($25 to $30 for a 60-min tape) but more cost-effective than one-half inch (VHS and Betamax) tapes ($6 to $9 for a 60 to 120-min tape). Three-quarter inch tapes provide better color resolution, sound fidelity, etc. Use of ¾-in. tapes is recommended. Of the 33 tapes made by meat scientists, 22 were recorded on ¾-in. U-Matic tape (see Table 2).

Duplication costs also vary from $5 to $35 per tape. It is important to have all copies "time base corrected" to maximize video quality. A few instructional tapes are available at $50 (tape and duplication) and others cost $140 (tape, duplication and some profit to recover production costs).

Editing is expensive and requires a skilled person capable of operating a tape editing system. Commercial editors charge $75 to $150 per hr, but tape editing for university-related tapes at Texas Tech amounts to $17.50 per hr.

Question: Can VT be overused?

Davis: Yes. VT should be used as a supplement to lectures. It can be very useful to show plant operations now that plants are giving fewer tours. It is recommended that VT be available in the library and used as a lecture supplement.

Another suggestion is to go to public TV on campus and obtain technical expertise, thus eliminating amateurish problems.