THE TROUBLE WITH TRANSMISSION IS . . .[1]

by Hyland R. Johns

The trouble with transmission is that all the squirrels aren't in the trees. Or, to put it Pogo's way, "We have met the enemy, and the enemy is us." Well, we may be at least part of the problem.

This presentation will not discuss line faults, engineering and construction problems, contaminated insulators, overheated splices, EHV electrical field effects, aeolian vibration, woodpeckers, endangered species, emergency restoration, hunters, corrosion, etc. Instead, the focus is on problems of transmission R/W management that seem to occur widely around the country. Although introduced in a negative way, each problem affords an opportunity for a constructive approach. To borrow a government term, we need an "Affirmative Action" program to turn problems into opportunities.

THE TROUBLE WITH TRANSMISSION IS . . .: 1) you have to manage it, 2) confusing array of herbicides and adjuvants, 3) wrong recommendations, 4) short-term decisions, 5) low bidder, 6) confusion among government agencies, 7) jargon, 8) the media, 9) hardcore environmentalists, 10) water, 11) misconceptions, 12) complaints from utility personnel and 13) lack of good record system.

You have to manage it. It can jeopardize your job if too many outages occur, especially on 500 KV.

Management means having a preventative maintenance program. Sometimes we forget that "reliability" is the primary objective — not just spraying, sidetrimming, etc. (or we worry more about leaving certain species than removing the danger trees).

R/W vegetation managers need engineering guidelines (e.g. 15′ added sag on long spans under heavy loading can strike over as much as 8′ depending on voltage). Talk to your Transmission Engineering Department about calculations for catenary curve and other factors. Know your system. Use up-to-date records and maps.

The confusing array of herbicides and adjuvants. Before the suspension of 2,4,5-T on R/W in 1979, there were approximately 50 labels to choose from. Today there are over 150 available! There are confusing choices to make in trying to get the best results per dollar, and large, expensive inventories to maintain. Most utilities put an overhead charge of 25% to 35% on inventories to cover warehousing, shipping, insurance, shrinkage, etc. Cost plus 10% for herbicides just doesn't cover it.

We need to do more comparative testing on each system to keep current — but those results pay off. With available technology, we have capability to manage any acre of land anywhere, using herbicides. Adjuvants are more important today; they can give greater protection off target and superior results on the R/W.

This problem gives you the flexibility of choice of methods (including manual and machine) and formulations to meet anti-pesticide efforts. Don't be too rigid in developing your program, and then you'll be able to defend it.

Wrong recommendations. Sometimes the wrong formula, combination, timing, or method gives poor results — under an 85 or 90% guarantee. Then everybody looks for someone to blame.

Specifications or recommendations must be based on proven research results, replicated for at least two years to insure validity.

Too often new products are compared on a cost/gallon or cost/pound instead of cost/acre/year basis against proven standards — or evaluations are made after 3 months or 12 months or 18 months, in only one location.

Differences from region to region, state to state, utility to utility, are often overlooked as to:

1. Presented at the annual conference of the International Society of Arboriculture in Indianapolis, Indiana in August 1983.

Transmission versus distribution
Crops and ornamentals
Public acceptance
Management policies
Legislation
Climate
Soils
Vegetation
Etc.

Short-term decisions. Short-term problems or management decisions can conflict with long-term goals of R/W management. Government agencies in some states require long-range R/W management plans in considerable detail. Long-range R/W planning can help sell your management on your program and avoid budget cuts.

One survey of utilities showed that R/W managers want more training of applicators and more professionalism at the crew level. This means continuity of work, rather than short-term contracts. To some extent, transmission work is back in the "dark ages" of distribution trimming 50 years ago, when short-term contracts required itinerant crews to move from job to job.

Deferred treatments or short-term contracts cost more. Extended season and dormant treatments are better in more ways. Instead of three crews for three months, use one crew for nine months, which means: less equipment at lower cost, fewer men, less turnover, better training and closer supervision.

Equipment Example:

Cost of Sprayer	$25,000
Cost of Depreciation	$ 5,000/Year
Other Cost: Operating and Maintenance	
Return on Investment	
Insurance	
Tags	
Etc.	

Depreciation alone:

If Used 10 Weeks	$12 Per Hour
If Used 20 Weeks	$ 6 Per Hour
If Used 40 Weeks	$ 3 Per Hour

Low bidder. Contracts are sometimes awarded to the lowest bidder without using a vendor evaluation system.

Evaluated low bid or "ultimate cost" low bid should be the guideline. Evaluated low bid factors:

Technical assistance
Management attitudes and policies
Supervision — planning and scheduling
Work practices
Employment and training
Crew experience
Productivity
Certification and re-certification
Complaints and claims
Equipment types — age and condition
Public relations program
Record-keeping
Results

Confusion among state government agencies. The situation is worsened by competition and confusion among government agencies within a state — each seeking control of R/W management practices. Examples:

Utility commission
Environmental
Agriculture
Health
Consumer advocate

While you can't directly control such a situation, having a defensible long-range plan and record-keeping system, and high standards for crew performance can prevent trouble. An active program of demonstrations, tours and educational efforts using recognized experts, can alleviate agency concerns and pressures.

But, whatever else you do, get to know your regulators!

We need more science in the regulatory area. We need to show how risk analysis of R/W management methods can be done.

Jargon. The jargon we use can upset the public and media. Examples of *red flag* words include:

Spray
Broadcast foliage
Poisons
Mist blower
Brush Kill
Herbicide

Being right isn't always enough. We need to use terms acceptable to the public, such as:

Treat/Control
Apply
Selective
Plant communities

R/W Management
Product
Tool

The media often exaggerate controversy, or seem to generate it when little or none exists. This promotes readership, but doesn't always promote the truth. You know the symptoms.

A recent example was the picloram story in *Arbor Age* based on some year-old newspaper stories that had been fully investigated and discredited.

R/W's are highly visible and occupy extensive land areas, i.e., 5 million acres, equal in area to the 6 New England states. Work actively with the media in your area. We must show the public that utilities and applicators are concerned about effective, safe R/W management.

Hardcore environmentalists. Many R/W managers either ignore or are not permitted to contact groups such as Audubon, Nature Conservancy, Sportsmens Clubs, or others, to develop cooperative working relationships or work to resolve differences.

"Resource managers are not prepared to acknowledge the legitimacy of public demands to participate in natural-resource planning. Many managers fail to see how the public can actually provide innovative solutions to the problems created by those demands.

Often, we would rather change the public's mind about management practices than become more responsive to public interests. We seem more interested in convincing others that we are right and that it serves their best interest. We are tough-minded and politically conservative as well as self-reliant: traits which, combined with our scientific training, may explain some of the conflicts between resource professionals and the public" (Journal of Forestry).

We need coalitions of utilities, railroads, pipelines and highways, within a state, assisted by contractors and chemical vendors. Professionally prepared programs, demonstrations, and cooperative projects *at the statewide level* could be tremendously beneficial. As William Ruckleshaus said, "Like it or not, scientific decisions will be made in the political arena."

Water. R/W's often cross streams, wells, watersheds and wetlands. Water is fast becoming a precious asset and a political issue. Water and other public health issues will be the offensive strategy in the '80s and '90s for the anti-pesticide faction.

These activists will circumvent state agencies and go directly to county health officers and regional water boards. A $5 million study by Cornell (as reported in Dow's *The Botton Line*) showed that problems were coliforms, mercury, lead, and other contaminants. Nevertheless, these sensitive water areas need careful treatment.

Misconceptions. A common misconception in our industry is that the public opposes herbicide applications. On the contrary, there are still less than 5% refusals nationwide, about the same as 35 years ago when I first used herbicides. There are only a few local exceptions, but 3% to 5% seems to be the range nationally.

Most suburban homeowners and farmers use herbicides and other pesticides for household pests, lawn care, poison ivy, crops and ornamentals. There are just more questions and more problems now, and we have to work harder to get the jobs done.

Worker safety, public health, wildlife improvements and economic factors regarding herbicides versus mechanical and manual methods are not well understood by the public, by the regulators or the media. We have a real job to do. Being right is not enough.

Complaints. Maintenance crews and patrolmen complain about access problems of briars, trees

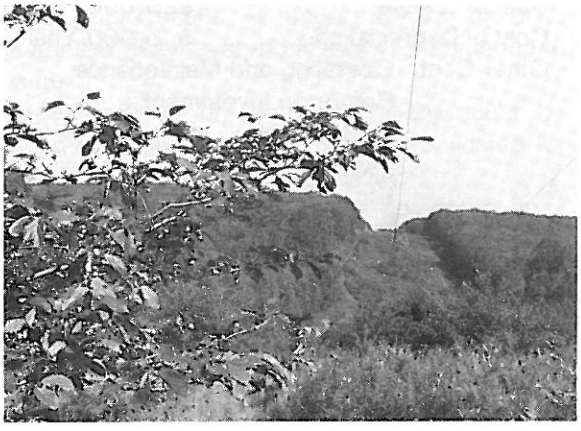

Figure 1. Witch-hazel fruiting on a transmission line right-of-way (photo courtesy of Bramble & Byrnes).

and brush remaining from selective herbicide treatments.

Working with nature sometimes creates problems, such as result from highly selective treatments.

For many years, some R/W managers have used several methods to keep double standards of maintenance for center and at sides to produce the "U" shaped R/W.

Lack of good record system. Lack of adequate records or record-keeping systems affects:

Utility companies
Regulators
Contractors

It is difficult to get programmer time or mainframe priority, yet good record keeping is now becoming required by law.

Record keeping can be contracted under several different arrangements, and at a price that is a small fraction of the cost of the system it can control. We are rapidly becoming an information society, whether we like it or not. We must all make this shift, or be left behind. Remote computing and software development is available. You don't have to stay in-house.

Mini personal computers in your office can be used to access large remote mainframes. Display terminals, color graphics and query software will allow you to ask "what if" questions and receive an answer graphically displayed within minutes.

Conclusion

Multiple use is great, but reliability is extremely critical — especially on EHV lines.

R/W occupy highly visible land areas. An estimated $160 million of the $1 billion spent annually for utility tree and brush control is for transmission; good record systems are needed for planning, budgets and economic results.

Long range prescription programming, active PR programs, records, continuity of contracting, are necessary to maintain reliability as economically as possible.

"Good enough to get by" isn't good enough any more.

Bibliography

Abel, D.W., Jr. Tomorrow. 1982. Amica Insurance Company.

Anonymous. 1982. New opportunities in a changing world. American Can Company Annual Report.

Berg, G.L. 1983. Trouble At The Well. Farm Chemicals.

Bramble, W.C. & Byrnes, W.R. 1982. Annual Report to Cooperators — Addendum. Gamelands 33 Research Project, p. 33.

Bramble, W.C. & Byrnes, W.R. 1982. Development of Wildlife Food and Cover on an Electric Transmission Right-of-Way Maintained By Herbicides: A 30-Year Report. Purdue Agriculture Experiment Bulletin, p. 24.

Environmental Consultants, Inc. 1977. Environmental and Economic Aspects of Contemporaneous Electric Transmission Right-of-Way Management Techniques. Empire State Electric Energy Research Corporation. 3 Vols.

Environmental Consultants, Inc. 1979. Management of Transmission Line Rights-of-Way for Fish and Wildlife. U.S. Fish and Wildlife Service, p. 163.

Environmental Consultants, Inc. 1979. Right-of-Way Ecological Effects Bibliography. Electric Power Research Institute EA-1080, p. 246.

Heinrichs, J. 1983. The 7 deadly sins of forestry writing. J. Forestry 81: 380-381.

Holewinski, D.H. & Johnson, P.A. 1983. *Cost comparison of right-of-way treatment methods.* J. Arboric. 9: 153-155.

Anonymous. The complete spectrum of politics involved in defeating environmentalism. Logging Management (April).

O'Connor, W.R. 1983. *Transmission right-of-way management plans.* J. Arboric. 9: 48-50.

Reeves, R. 1983. The business elite vs. the media elite. The Philadelphia Enquirer, April 14.

Seevers, O.C. 1982. Efficient Electric Utility Operations. The Fairmount Press.

The Dow Chemical Company. 1982. Let's look at all sources of ground-water contamination. The Bottom Line, Spring issue.

The Dow Chemical Company. 1982. Introducing science into the regulatory area. The Bottom Line, Fall issue.

Whitmore, T.E. 1981. Spray Adjuvants Are Management Tools. Great Lakes Fruit Grower News, April.

Vice President
Asplundh Tree Expert Company
Willow Grove, Pennsylvania