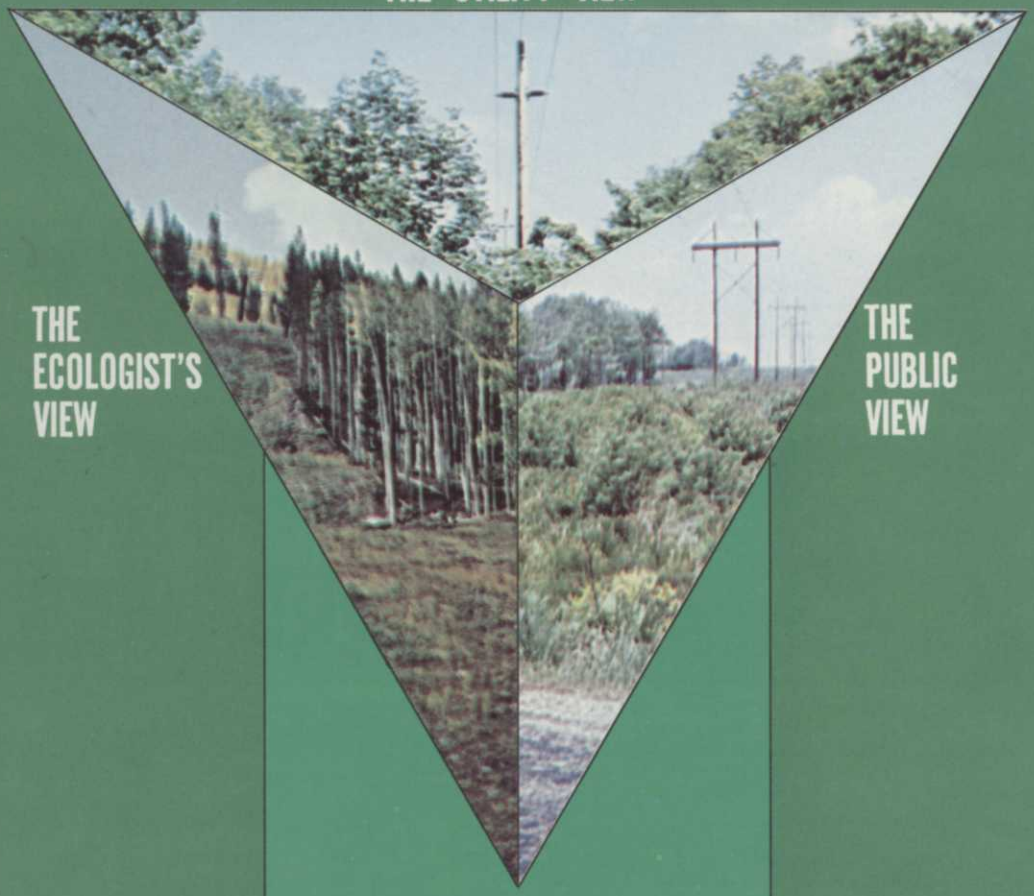
THE UTILITY VIEW



THE ECOLOGIST'S VIEW

THE PUBLIC VIEW

THE FUTURE

Rights-of-Way Maintenance

Rights-of-ways such as the one above have much potential for wildlife production and recreation. Opening areas where tree growth is heavy stimulates the production of ground and shrub vegetation. Food supplies for birds and mammals are improved. Better land management practices can be adopted that will benefit the ecological balance of nature. Recreation possibilities include hiking, bicycling and in some areas skiing. The multiple purpose concept will gain increasing importance in the future.

RIGHTS-OF-WAY MAINTENANCE — THE FUTURE

The Ecologist's View

By
DR. DONALD A. SPENCER
Consulting Ecologist
National Agricultural
Chemicals Association

THE U.S. Forest Service[1] states that, "There are over 50 million acres of rights-of-way in the United States — an area the size of the six New England States."

While commercial and economic considerations fully justify such use of the land, associated values have largely gone unrecognized and unexploited. We have already reached a period in the development of our country when it is no longer justifiable to ignore the potential productivity of a single acre.

In the course of travel, transport and transmission along these corridors, little intentional use has been made of the uncommitted surface area. Its maintenance in some acceptable condition has been a drain on our available manpower and finances. We are alluding to the shoulders of canals, railroads and highways, and the entire expanse of the right-of-way over pipelines and under powerlines.

Our relatively affluent society, long relieved of the concern of where the next meal is coming from, now focuses its attention on the recreational and aesthetic values of the land about them. Unfortunately aesthetic consideration of the environment quite commonly ignores reality as it pertains to natural resources and to the wildlife we are endeavoring to perpetuate.

Equally disconcerting in environmental matters is the failure to comprehend that change or recycling of a renewable resource is not necessarily degradation.

Further, in the course of building a better habitat for ourselves and for wildlife, the final product must not be judged by transient conditions at the start. It is impossible to prepare a banquet without soiling some cooking and serving dishes.

Every new corridor — road or transmission right-of-way — must under Federal regulations prepare an *environmental impact statement* be-

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The Utility View

By
GORDON MUNDRANE
Superintendent of Operations
Jersey Central/New Jersey
Power and Light Company

IN NEW JERSEY, like many other states, we are confronted with an increase in regulatory agencies stressing environmental protection and concern with the impact of future transmission construction and maintenance on the land use plan.

By way of orientation, Jersey Central/New Jersey Power and Light Company, subsidiaries of General Public Utilities Corporation, supply electrical power to 555,000 customers in a service area representing approximately 43 percent of the State of New Jersey. The two utilities, operating as one company, are composed of six divisions located in the northwestern and east central part of the State.

Prior to 1947 our transmission right-of-way maintenance program consisted of periodic cutting. This was an expensive and time consuming program. It was decided at this time to experiment with brush control by the use of chemicals and applied by a contractor. This pilot program was so successful both in maintenance results and economics that we decided in 1950 to continue the program on a permanent basis and to place all rights-of-way under chemical management.

Today, approximately 15,000 acres of transmission rights-of-way are under chemical control. Lines are currently under repetitive treatment cycles of from three to six years as the need requires. Basal spray treatment has been the primary application method in the maintenance program.

All chemical applications are selective. Our objective, of course, is to eliminate, within the confines of a right-of-way, certain specified undesirable vegetation, and to promote a stable ground cover of grasses, wild flowers and native low-growing shrubs and trees. To this end we believe that our right-of-way management programs have

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Permitting trees and other vegetation to grow where utility rights-of-way cross roads provides an effective visual barrier. However, because transmission lines cross many roads, future maintenance must include tree trimming costs. As more and more visual barrier are permitted and rights-of-ways are allowed to return to more natural vegetation than before, future maintenance will include much hand labor and at a high cost per ROW mile.

Many rights-of-ways have practiced blanket spraying to control unwanted vegetation. The opportunity to create environmental diversity by encouraging the growth of a variety of low shrubs has been wasted. The transmission lines above would be little affected by low growing species of ornamentals. The 50 million acres of rights-of-ways have great wildlife production potential. There is no need to condemn all woody vegetation as brush. Herbicides, properly used, are an important tool in vegetation maintenance. Rational and intelligent use of herbicides is all that the future asks.

RIGHTS-OF-WAY MAINTENANCE — THE FUTURE

The Public View

By
ROLAND C. CLEMENT
Vice-President
National Audubon Society

Editor's Note: *No issue is worth discussing unless all sides are presented. While we believe that many readers are familiar with the side of the utilities, less is known about the views of the ecologist and those of the public. We have presented the comments of Mr. Clement as the public view to provide a broader perspective from which to make an opinion. Publication of this article in no way constitutes an endorsement. The National Audubon Society continues to be instrumental in creating increased interest in wildlife preservation and conservation practices.*

THE analysis of trends called for in the title of this discussion calls for recognition of the fact that current projections for supplying electric demands involve some 197,000 extra miles of right-of-way by 1990[1].

However, I am interested in changing these trends because I believe that such growth projections are suicidal. Whatever the ultimate acreage we commit to rights-of-way, we can begin by recognizing that the existing 50,000,000 acres now so committed represent a nationally important open space in a diminishing pool of national open space.

In short, we have already committed to rights-of-way an area the size of New York State, or ten times the size of Connecticut. The revolution in environmental awareness we are witnessing calls for giving this land use much more thoughtful consideration than it has had in the past.

As a wildlife conservation specialist, I call your attention to the fact that these 50,000,000 acres have a great wildlife production potential. Since these are mostly private lands, you need to be sensitive to the fact that wildlife includes several hundred species in addition to the pheasants and quail equated with wildlife in the past. The non-hunting general public is more interested in the scores of bird species that might utilize the rights-of-way than they

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fore authorization for construction is granted. Whatever can be achieved in minimizing aesthetic impairment of the environment without sacrificing other important values must be spelled out.

Thus on an electric transmisison line a screen of trees can be left (or provided) where the corridor crosses a highway or stream. Likewise, on a rising slope where the straight line of the corridor becomes so obvious from the ground, the route can be angled, or broken by intermittant plant screens. In the manipulation or replacement of the general plant cover of the right-of-way, values other than aesthetic generally take precedence.

The great majority of pipeline and electric transmissions rights-of-way are just that, the right to install and service the line on property that is not purchased from the owner. The individual property owner retains the right to employ the surface area as he sees fit continuing to farm the area, use it for grazing, grow trees, control tresspass, etc.

In developed areas, the owner, having no immediate plans, may relegate the responsibility of suppressing height growth of recovering vegetation to the transmission company.

On the other hand, the land owner may stipulate as part of the right-of-way lease or license that only tall-growing species of trees be removed and that native shrubs be damaged as little as practical in constructing the line.

Since ground cover must be promptly replaced to avoid erosion some transmission companies have provided the land owner a voice in the type of vegetation to be re-established. Thus the transmission company is far from a free agent in the decision on management of the different parcels of land crossed by the corridor.

Despite all the objections made when each new right-of-way is proposed, the corridor so formed is often of tremendous value to wildlife — both game and non-game species. This is particularly true when those rights-of-way cross forested country. Corridors, whether they be 50 or 300 feet wide, create openings where sunlight stimulates the production of ground and shrub vegetation. The closed canopy of a woodlot or forest is an excellent retreat and cover but is essentially lacking in food and browse plants.

Birds and mammals are the product of the "edge" between food supplies in the open and shelter in the timber. We are seriously losing game and wildlife habitat in the United States by the declining number of small farms and the closing-in of maturing forests that 40 years ago were prime habitats for deer, rabbits, grouse, wild turkey, quail, and other species.

Fifty million acres in narrow linear corridors provide **edge effect** far beyond most other land mangement practices. In many parts of this country, developing these rights-of-way as open corridors with a plant cover favoring wildlife is not only compatible with their primary purpose (transmision) but will give the highest environmental return.

The state conservation department journals are beginning to sparkle with success stories in cooperative wildlife programs on transmision and pipeline corridors. For example, the Department of Fish and Wildlife Resources in Kentucky[2] just recently worked-out a cooperative plan with Columbia Gulf to seed sections of their 150 feet wide, 240 mile long pipeline with upland gamebird plant covers which include Sericea lespedeza, crown vetch, buckwheat, etc.

Georgia Power Company (Atlanta) actively promotes "Attract and Conserve Wildlife in your area: with help from the Georgia Power Company", and the Georgia Game and Fish Department pay them tribute[3].

The Wisconsin Power and Light Company has been practicing selective vegetative management on their power line rights-of-way since 1955 and found it to be not only of public benefit but at a savings of maintenance costs to themselves[1].

All this requires management and not just happenstance vegetative recovery and periodic knockdown. It calls for selective removal of undesirable trees, selective use of herbicides (such as stump treatments), use of growth-regulating chemicals, and cooperative programs with habitat management groups in vegetative programming.

While the foregoing has focused on those corridors where rather minor acreage is removed from vegetative production, it does not follow that other types of corridors such as highway and railroad rights-of-way and canal banks have no similar attraction for wildlife — they have.

In the midwest and Great Plains both pheasants and wild ducks make

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are in pheasants. And the general public doesn't shoot up transformers on high-tension lines.

In addition, in many suburban areas of the northeast there are unexploited opportunities for building good public relations by developing hiking trails along these rights-of-way, something most local conservation commissions would be glad to help with.

You have, however, three problems to overcome before your services will be widely accepted outside the utility industries which have so far been captives of unimaginative vegetation management techniques.

I predict that the utilities will not remain captives very long, however, because they are about to feel the crunch of justifying increasing electric power costs for the first time in their history. This will lead to new budget scrutiny that should favor more economic and more socially sophisticated programs of right-of-way management.

The first broad problem mentioned above is that associated with your credibility as scientists; the second has to do with the acceptability of your tools, the herbicides; and the third involves the acceptability of the effects of your practices in an increasingly sophisticated ecological age.

The question of credibility, like it or not, is entangled in the abuse of herbicides by our military in Vietnam. It is psychologically inevitable that the abusive use of a tool by one group will involve all other users of that tool in the public mind.

The way out of this dilemma is not to accuse the public of emotionalism, but to make sure no one abuses a good tool and that the public is educated to the realities of the case. This is not a passing fancy, because the concern of the American Association for the Advancement of Science dates back all of five years.

The Department of Defense's attempt[2] to answer its critics by having the Midwest Research Institute "assess the ecological effects" of herbicides only made matters worse among knowledgeable audiences because MRI was not competnt to assess ecological effects. As Frank Egler[3] pointed out, this MRI review succeeded mostly in showing that there is very little science in Weed Science.

Let me elaborate on this last point to avoid insulting those of you who consider yourselves scientists. I refer here to the fact that science is necessarily reductionist. Science analyzes environmental reality on a piecemeal basis. This makes the scientist an expert in a very small area of the total reality that must concern us as citizens, and the trouble is that science, having dismembered reality for analytical convenience, is seldom interested in putting things back together again. What is required is an ecological point of view, but very few people have developed such a point of view as yet.

A generation ago Alfred North Whitehead[4] pointed out that a proper profession is "an avocation whose activities are subject to theoretical analysis, and are modified by theoretical conclusion derived from that analysis." We've all been in such a hurry to keep up with the Joneses that we haven't done much philosophizing, which is what theoretical analysis is.

As a result, the Mrak report[5] to the Secretary of Health, Education and Welfare caught everyone by

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ECOLOGIST'S VIEW *(from page 24)*

such use of roadside cover for nesting that the first spring mowing of the rights-of-way have to be postponed until after the eggs have hatched. In the arid southwest the roadsides, because of the paved strip and the bordering bar pit, remain green long after the adjoining lands have dried up. In a way this attraction to these corridors is unfortunate for traffic moving at high speeds exacts a serious toll. For example, over 20,000 deer are killed each year on the highways in Pennsylvania. In contrast, pipelines and electric transmission lines, can be relatively disturbance free.

It would be an error not to cite the important bid man's recreational programs are making for these corridors. In addition to the necessity of establishing cross-country trails for hiking, bicycling, and skiing, the advent of OFF-ROAD-VEHICLES has put both public and private agencies under heavy pressure. Motorcycles, trail bikes, snowmobiles, dune and marsh buggies are here to stay, but their potential for damage to the natural environment is recognized. The goal is to get them off the public highways, away from critical wildlife habitat, and on to crosscountry trails designed and programmed for their use.

Wisconsin, by the fall of 1971, had registered over 127,000 snowmobiles and from these receipts has a program for trial development[4]. The average length of trail desired is about 25 miles, with minimum of 10. They now have 550 miles scheduled for construction.

Governor Rockefeller recently requested an inventory of abondoned railroad rights-of-way within New York State, having in mind their conversion to bicycle trails[5].

Oregon State legislature is reported to have allocated $1.3 million for bicycle trails.

It remained for the Illinois Department of Conservation to come up with one of the most unique trail systems. The state purchased the abandoned Hennepin Canal and converted the majority of its 96.8 mile canal system to a cross-country pleasure boat "trail".

Corridors in the United States are thus headed for multiple purpose use. The competition for their supplemental use is apt to be keen, for many of these uses are not compatible, one with another.

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PUBLIC VIEW *(from page 25)*

surprise, and Theodor D. Sterling[6] pointed out that the questions of 2,4,5-T's toxicity and teratogenicity will not be soon settled because no one has yet put together a satisfactory experimental design to assess the effects of 2,4,5-T at low doses. This is certainly something you practitioners should have insisted the chemical companies do for you.

Perhaps the worst effect of past right-of-way management with herbicides has been the wasted opportunity to create environmental diversity by encouraging the growth of a variety of low shrubs by spot treatment with judicious herbicide applications instead of the wasteful blanket spraying that has been the rule. The electric utilities are even more to blame here for having allowed you to waste company funds that should have gone into environmental protection. This is where the real opportunities exist.

For over a decade, beginning in 1946, Frank E. Egler[7] published a long series of scientfic and popular articles advocating spot control of woody vegetation by 2,4,-D and 2,4,5-T, a methodology completely rationalized in his 1953 Smithsonian Institution Report, "Vegetation Management for Right-of-ways and Roadsides". William A. Niering of the Connecticut Arboretum repeated many of these studies and spoke to early Northeastern Weed Control Conferences about them.

In 1963 Niering and Richard H. Goodwin produced a homeowner's guide, "Creating New Landscapes with Herbicides[8]".

In 1961 the U. S. Forest Service[9] accepted Egler's vegetation management concepts in a publication of its own. And in 1966 the methodology was put into a popular book, THE WILD GARDENER IN THE WILD LANDSCAPE, by Warren G. Kenfield[10].

The crux of my message is that the science of right-of-way management is in print, but that few of you have used it.

I acknowledge that some of you have accepted *some* of these ideas and tried to apply them, with more or less success; but I feel safe in saying that blanket spraying has been the rule. Too many of you have been concerned with "killing brush" rather than manipulating vegetation. The first approach is negative, the second both positive and dynamic.

The times call for working with Nature by adapting our technology to environmental dynamics. Herbicides, properly used, are an ingenious tool for molding the landscape by selecting out those few species that have a tendency to get in the way of growing into overhead wires, or otherwise interfering with our objectives.

There is no need to condemn all woody vegetation as "brush," as too many chemical company advertisements have done. There is no need to oversell herbicids; it is time to use them rationally, as the valuable tool they are when used sparingly and intelligently. This is all the future asks of you and me.

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Grounds Management Society Schedules September Meeting

The Professional Grounds Management Society has announced the dates of their 1972 annual meeting. The Society will meet at the Twin Bridges Marriott Hotel, Washington, D. C., September 13-16. Registration will begin on the morning of the 13th. Members and non-members of the Society and all people interested in gardening and grounds management are urged to attend.

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been most successful. It is not my intention to burden you with extensive cost figures. You might, however, be interested in one compilation relative to maintenance expenditures. Transmission maintenance cost of acreage treated annually over the period 1960 through 1971 averaged $54.00 per acre treated.

In addition to the transmission program, over 700 miles of roadside distribution rights-of-way are also under chemical control.

Cooperative activities with municipal, county and state agencies have been an important part of our vegetation management program. We have had the privilege of participating in numerous projects related to soil stabilization, game food and cover plantings, roadside safety, and beautification. Herbicide applications have been made over all types of terrain under diverse soil and drainage conditions, through wildlife areas recreational areas and in close proximity to residential locations.

Acceptance by the general public of our transmission and distribution chemical programs has been most favorable. We believe this has been largely due to the "selective" approach and timely scheduling of repetitive treatment resulting in the suppression or elimination of unsightly "brown out" areas, in short, aesthetics—and reasonable respect for the property of others. Since most of our transmission rights of way are easements, our contractor attempts to make a "courtesy call" to each property owner before traversing or treating the right of way on his property.

We believe *immediate personal contact* is essential to any spray complaint situation and our ability to reach and inform those questioning the operation has resolved many potential problems.

Objections attributable to the chemical programs over the past 23 years have been minimal, and those that have developed were usually found to be based on misunderstandings. However, the confusing and adverse national publicity of 1969-1970 associated with the use of herbicides did set the stage for a complaint of considerable magnitude.

In July 1970 we were the recipient of a continuing series of news releases, soundly criticizing our work and the use of herbicides in general.

We feel that the use of the controversial herbicide was not the real problem. We are of the opinion that this was used as a tool to stimulate an emotional controversy, was political in origin, and designed to promote continuing newspaper coverage—which it certainly did—all unfavorable to the company image.

Unable to resolve the problem through normal means, and recognizing that defense of the chemical program was mandatory, our Public Information Department arranged a press conference—in order to place the company chemical vegetation management program before the public and in its proper perspective.

We are certainly aware that the activities of the company are under close public scrutiny, and accordingly, have made some changes in the transmission right of way management program. Consideration is given to reducing the repetitive treatment cycle in specific problem areas to further reduce "brown out" potential.

We are also able to customize the chemical applications to better

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suit local conditions. For example, heavily populated areas, major recreational areas, camp sites, summer colonies, and similar facilities are treated only during the dormant season.

In 1970 we altered our chemical program to eliminate applications on all existing transmission lines at primary and secondary road crossings to facilitate the return of natural visual barriers at these critical locations.

We believe we have been operating a sensible, well supervised, aesthetically acceptable and safe chemical program. It is our intention to continue the vegetation management maintenance program on the system transmission and distribution rights of way wherever it is inappropriate.

After much public opposition to a proposed 500,000 volt overhead steel tower line, the New Jersey Public Utility Commission, in 1969, gave our neighbor, Public Service Electric and Gas Company, approval to proceed—but six precedent setting requirements had to be met. Essentially these were:

1. Use of available railroad or other existing rights-of-way.
2. Tower locations related to topography to minimize appearance.
3. A program of tower painting designed to minimize effect on surroundings.
4. Where practical, permit special uses of the rights-of-way for farming, recreation, etc.
5. Non-uniform clearing of rights-of-way and retention of a maximum number of trees.
6. Landscaping of conspicuous right-of-way areas.

Our company is also committed to the pursuit of these and similar requirements.

In the past all of our rights of way have been "clear cut," stump sprayed and maintained chemically. Our experience with the new concept of selective clearing is limited to one 230,000 volt right-of-way, 120 feet wide and approximately 11 miles long. The right-of-way was predominantly farm or open land, with some forested areas and hedgerows. Approximately 35% of the right-of-way was wooded. Selective tree removal and/or trimming was undertaken at road crossings and at each end of the forested areas.

We have no way of estimating future maintenance tree trimming costs on this right-of-way. The use of herbicides in future maintenance work on this line is questionable at this time. We cannot, however, consider the line a typical right-of-way experience.

In addition to the right-of-way restrictions imposed by the New Jersey Public Utility Commission, the State of New Jersey enacted the New Jersey Pesticide Control Act of 1971. This Act formulates State policies regulating, among other things, the use of herbicides. Among its shortcomings, municipal ordinances which may be impracitcal and unrealistic can take precedence over the State Act. To date, this Pesticide Control Act has had no impact on our vegetation management program.

Approved in 1968, Chapter 245 of the laws of New Jersey authorize municipalities to establish conservation commissions. Their functional range covers:

1. Open Space preservation.
2. Scenic, aesthetic preservation, and beautification.
3. Pollution control.
4. Waste disposal.

There are over 100 active commissions in New Jersey today.

Our experiences to date with municipal conservation commissions involved property owner complaints related to our transmission chemical program. Through our education of these municipal commissions as to the benefits of our chemical program and the proper application of chemicals, the commissions in turn were able to alleviate the fears of the property owners who considered the chemicals dangerous.

A most important regulatory control facing the utility industry in New Jersey today is Chapter 2, New Jersey Air Pollution Control Code—Control and Prohibition of Open Burning. The revised chapter stipulates, among other things, that "plant life" may not be disposed of by open burning. This takes effect January 1, 1973. "Plant Life" includes all vegetation.

Some municipalities have already prohibited all open burning, by local ordinance, in advance of the effective date of this Act.

An all-encompassing solution to the problem of transmission right-of-way tree and brush disposal is

not now known. The alternatives of logging, stacking, burying or chipping are not entirely compatible with selective clearing and trimming.

Elimination of open burning, while reducing air pollution, compounds the problem of refuse disposal. However, the regulation will enhance the minimal clearing requirements versus clear cutting by reducing plant material disposal requirements.

In a few words, let me summarize where we are and where I think we are going in the area of right-of-way maintenance. The rights-of-way presently under chemical maintenance will be permitted to continue as it. The right-of-way requirement of tomorrow will be different than it is today. We presently use 34,000 volt as a subtransmission voltage to feed substations. These lines run cross-country creating many rights-of-way. Tomorrow they will be the distribution voltage in the street and will require maintenance trimming only. The cross-country steel tower line will still be in demand but will make better use of the right-of-way corridors such as railroad rights-of-way, gas transmission rights-of-way, etc. Where new rights-of-way are created, total clearing will be minimal or nonexistent, being replaced by selective removals and line contour trimming. Access roads to and on the right-of-way will be in some cases be nonexistent. This all means that right-of-way maintenance will be mostly by trimming and thus very costly.

We are presently negotiating for a 500,000 volt right-of-way across state lands. If successful, we know that tree removal will be very selective, contour tree trimming a must but, most important, it is questionable whether or not we will be able to construct access roads. This means that this portion of the line may be constructed by helicopter and tree trimming done entirely by climbing. The art of right-of-way maintenance is retrogressing.

Clean Chemical Containers Combat Contamination

What to do with used pesticide containers is the nagging problem that has the chemical industry exploring new methods of packaging materials. But until these new packages are perfected, metal or glass containers remain a potential contamination hazard to soil and water.

The National Agricultural Chemicals Association (NACA) suggests a procedure based on the techniques used by laboratories to reduce the concentration of material in a container. It's a simple rinse and drain procedure employed at the time the pesticide is placed in the spray tank.

After normal emptying, the container should be allowed to drain in a vertical position for 30 seconds. For best results the container should be rinsed three times, allowing thirty seconds for draining after each rinse, says NACA.

Fill the container one-quarter full with water or other diluting material. Drain each rinse into the spray tank before filling it to the desired level.

Used containers which have been rinsed and drained are ready for disposal by accepted local standards as crushing and burying or by recycling for scrap when appropriate.

For a free instruction sticker to attach to spray equipment, send a self-addressed, stamped envelope to: Safety Division, National Agricultural Chemicals Association, 1155 Fifteenth Street N.W., Washington, D.C. 20005.