# Ag and Food Interprets . . .

- **Furnace phosphoric acid is narrowing the cost gap in fertilizer use**
- **State highway departments taking more notice of fertilizer, pesticides**
- **Attractive market in forest pest control, but little industry research**
- **Search for chemicals to control plant viruses is tough**
- **ASA committee registers common names for pesticides**

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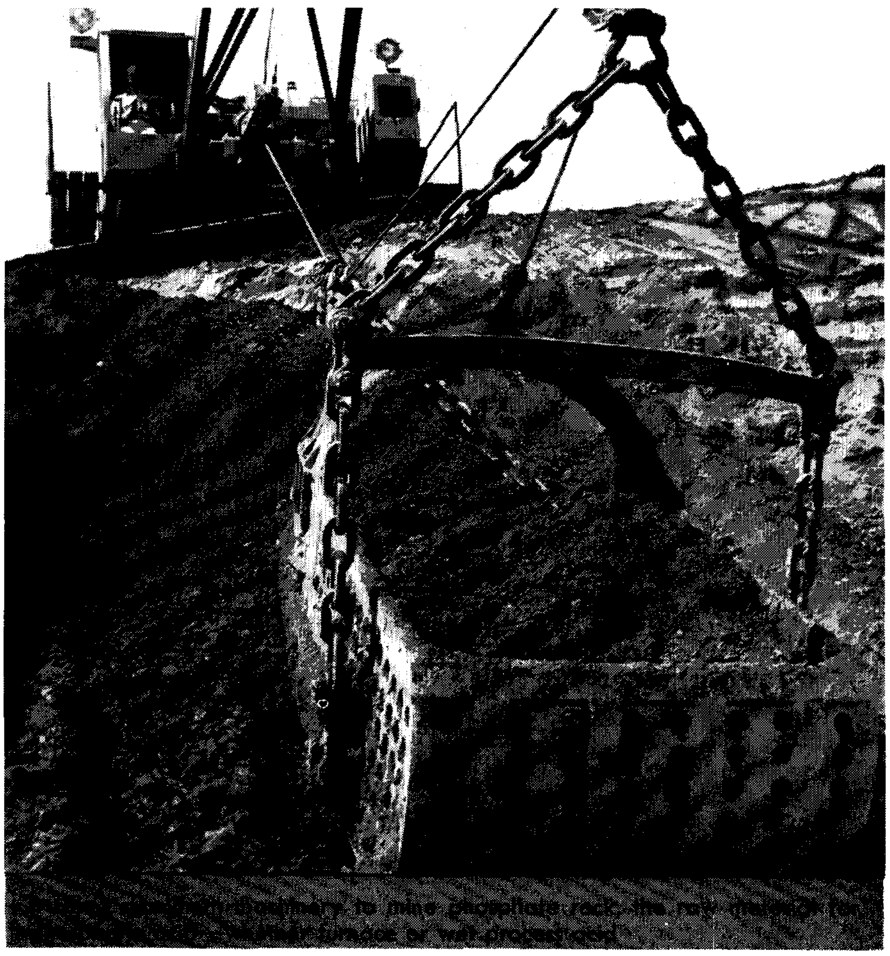
## Phosphoric Acid

**Wet process has the edge over furnace acid, but the edge is being narrowed. Effect on sulfuric acid?**

MARKED EXPANSION has taken place in the use of wet process phosphoric acid for the manufacture of phosphate fertilizers. It is a long term development still in progress. It has directed attention to the competitive status of phosphoric acid turned out by the electric furnace, as well as to the future position of sulfuric acid used on a large scale for wet process phosphoric.

Both wet process phosphoric and sulfuric acid would appear safe enough. Furnace acid, although purer, costs more. Wet process phosphoric has benefited from improvements in technology and the introduction of continuous processes such as the Prayon method. On a $P_2O_5$ basis its fertilizer use has grown from 182,000 tons in 1947 to 993,000 tons in 1956. The figure could pass 1 million tons in 1957.

There is also the possibility that new products like the nitric phosphates, employing nitric acid to the exclusion of sulfuric, might undergo expansion. Extensive increases in nitric phosphate production are not expected in the near future, however, and some authorities in this field contend that increased demand for fertilizers in general should more than offset any losses for sulfuric resulting from this development. This view is not fully shared; some believe nitric phosphates are due for much greater development, and that it is not far off.



[illegible] machinery to mine phosphate rock, the raw material for [illegible] furnace or wet process acid

Although wet process phosphoric acid has a cost advantage, experts at the Tennessee Valley Authority say the advantage goes to those who produce it for their own use rather than to the buyer. Market prices for the two acids, they point out, have been converging for several years and the differences reported are small. In most locations cost differences are too slight to offset difficulties involved in using wet acid. It is possible that industrial production of furnace acid of high concentration (76% $P_2O_5$) as made recently by TVA may wipe out the remaining cost differences.

Industrial production of furnace phosphoric acid comes out of surpluses at plants manufacturing elemental phosphorus primarily for the more profitable nonfertilizer markets. In this connection it is of interest to note that construction has started near Georgetown, Idaho, on the phosphorus plant of the Central Farmers Fertilizer Co., a cooperative; the installation may be the country's first privately owned plant of this kind to channel its entire output into fertilizers.

In the view of K. D. Jacob, Agricultural Research Service, USDA, there appears to be no clear indication that the cost spread between furnace and wet process acid will be greatly reduced for the country as a whole, at least in the near future. There are exceptions to this in some sections. The costs as between the two phosphoric acids, he states, are governed respectively by the costs of electric power and sulfuric acid. Higher transportation costs will favor greater use of furnace acid as compared with wet process acid.

Opinion of a large superphosphate manufacturer on the eastern seaboard is that considerably greater use of furnace phosphoric acid can be expected in fertilizer manufacturing. In support of this view he cites the growing use of liquid fertilizers—for which furnace acid is preferred—and the increased manufacture of very high analysis mixed fertilizers requiring the use of some phosphoric acid. Wet process acid, however, will still get the preference in most solid mixed fertilizers wherever it is available.

Fertilizer manufacture is a competitive branch of the chemical industry, as H. W. Dahlberg of International Minerals emphasized at the recent ACS Meeting. Producers are conscious of costs at every step, from procurement of raw materials through processing, mixing, bagging, and shipping. Transportation savings are made through the use of ships and barges wherever possible. The use of local storage points in some areas has cut delivery time from 12 days to 2 days.

A Chicago factor in the fertilizer phosphate field feels that wet process phosphoric acid for use in mixed fertilizers still needs to prove itself practical when shipped from producing point to mixing plant. Its use at points of production is already an accomplished fact. Not solved by some producers is the problem of removing solids from wet process phosphoric acid, although the problem is being actively attacked. Furnace acid is already meeting the competition of wet process acid in some locations.

### Mixer Problems

Because in many respects wet process phosphoric lends itself well to the idea, there is considerable interest in liquid fertilizers based on this acid. A TVA man at the ACS Meeting in Miami reported that TVA has conducted a good deal of work on liquids from wet process acid, and now has a process that keeps impurities suspended long enough to get ammoniation completed and get the mixed liquid fertilizer applied in the field.

Liquids are considered the best bet for furnace acid in the Midwest, but the business is beset with problems. Liquid fertilizer makers cannot generally work economically beyond a 100-mile radius, a restriction that leaves the field mostly to small operators. The latter have in some cases put up plants with inadequate storage facilities, and must depend on acid suppliers to make tank cars and trucks available.

One who feels optimistic about liquid fertilizers is S. L. "Sam" Nevins, Olin Mathieson vice president. He is certain that methods will be made available to manufacturers allowing the use of wet process phosphoric acid in producing liquid fertilizers. As to the general opinion that only furnace acid can be used, Mr. Nevins says: "We know this is not so because we have developed and are using wet phosphoric acid to produce liquid fertilizers in a process worked out in our laboratories."

### Nitric Fertilizers

Despite their restricted availability now, nitric phosphates are expected by some authorities to shoulder their way into the fertilizer picture in the future. TVA anticipates that improvements in nitric phosphate processes, such as incorporation of the ammoniator-granulator, will lead to expanded production. Lowered equipment and operating costs and improved process flexibility also should broaden commercial interest.

Some firms interested in nitric acid contend that nitric phosphate processes allow a considerable reduction in costs to fertilizer mixers. Angus M. Taylor, Jr., of Chemical & Industrial Corp., which has exclusive rights to the PEC process, says that products from a plant using this process make possible a 12-12-12 mix at approximately one half the cost involved in the use of other solids. Mixers' manufacturing cost with conventional materials is placed at $57 to $60 per ton, and profit margins are very narrow.

Taylor predicts that more basic suppliers will go in for complete fertilizer over the next 10 years or so, and bag it for dealers and distributors under the latter's trade names. A move in this direction, he thinks, would make for a more satisfactory price situation, and would lead to a sizable increase in nitric acid consumption. But in the opinion of a large Atlantic seaboard manufacturer, sulfur must be given consideration in the nitric phosphate development.

### Sulfur Requirements

When the sulfur shortage scare hit the country some three years ago, he says, there was a good deal of talk about swinging over to nitric phosphates. But today there is no shortage of sulfur in sight. One must also keep in mind, he adds, that more attention is being given now to the sulfur content of fertilizers. It is recognized that in many instances certain crops on some soils require as much sulfur as they do phosphorus. Another point which must be considered is that products made by the nitric acid methods contain forms of phosphate that are less soluble in water. These materials are regarded by many agronomists as less valuable than water-soluble phosphates.

Nitric phosphate development has not been confined to TVA. Several products of this type have been in large scale production in Europe for nearly 25 years. In this country Calspray, using the PEC process, has launched a drive into a well supplied market in the West, and in face of contentions that nitric phosphates would not work well there. Another private producer in the field is Allied Chemical & Dye. The process used by the Associated Cooperatives at Sheffield, Ala., is based on TVA work.

### Sulfuric Acid Outlook

What effect will all these developments have upon sulfuric acid, oldest of chemical workhorses in industry and agriculture? A Government fertilizer authority says quite bluntly that increased production of nitric phosphates and greater use of furnace acid in fertilizer manufacture cannot be other than disadvantageous to sulfuric acid. Sulfuric will also suffer to the extent that furnace phosphoric acid is used in making diammonium phosphate from coke-oven ammonia.

Consumption of sulfuric, on the other hand, would be favorably influenced by the use of wet process phosphoric acid in making liquid fertilizers. This is because production of a pound of phosphorus in the form of wet process phosphoric acid requires more sulfuric acid than does production of a pound of phosphorus in the form of either normal superphosphate or triple superphosphate. The influence of furnace acid on the use of sulfuric acid in fertilizer production in the years to come will be determined largely by the success achieved in cleaning up wet process phosphoric acid for uses now taking electrothermal acid.

One comment made in Chicago is that a trend away from coke-oven ammonium sulfate might be the influence most severely affecting sulfuric acid in fertilizer manufacture. Coke-oven diammonium phosphate, however, has not been around long enough to show the effect. In another quarter the opinion is expressed that even if ammonium sulfate production should diminish, sulfuric demand for other fertilizer materials would make up for the loss. These sulfuric acid–consuming products are triple super and ammonium phosphates from wet acid.

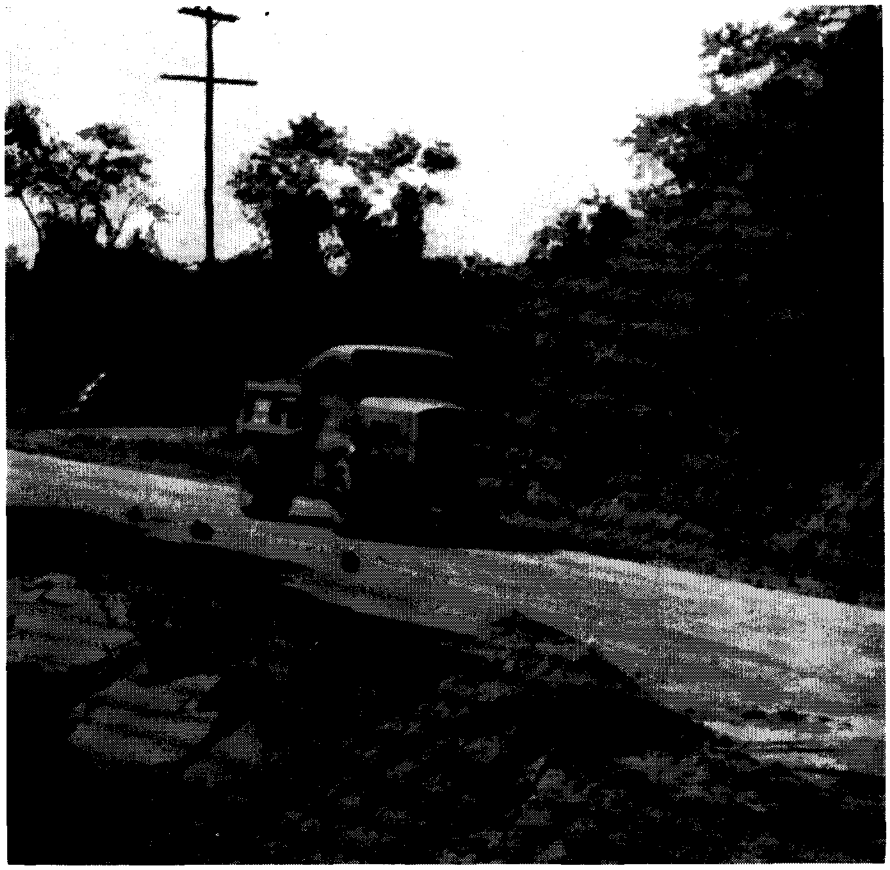
### *Liquid Fertilizers*

Although some contend that the tonnage is still unimportant, liquid fertilizers based on phosphoric acid are inching into the picture. TVA has made it known that it is investigating liquid phosphates, especially more concentrated solutions from wet process phosphoric acid. An industrial fertilizer interest says that if a satisfactory process is developed to utilize wet process phosphoric in liquid fertilizers, their use will expand faster. Potential consumption would be much greater since output would not be limited by electric furnace capacity.

Another manufacturer, however, forecasts increased use of furnace acid in the Midwest in the preparation of liquids. No one in his section, he asserts, has been successful in making liquids with green acid. The year 1957, a producer remarks, looks like the first really good year for liquid fertilizer in the Midwest.

# The Highway Market

**Some 400,000 tons of fertilizer could be used on the Nation's new highway system. State highway programs are also increasing use of fertilizers and pesticides**



No vegetative cover on this ditch and shoulder led to a hazardous road and expensive repair. Fertilizer and pest control could have helped to avoid this

Spring is road-building time. It will be even more so in coming years as the mammoth federal highway program begins to roll. Impact of both federal programs and many expanded state programs will be widely felt by the fertilizer and agricultural chemical industry.

Full-scale undertaking of the $50-billion program will not be immediate in all parts of the country. It is to require 13 years for completion, although most areas will be strongly under way by 1960. Many states will see no effect this year, since some further action by various federal and state agencies and legislatures is necessary.

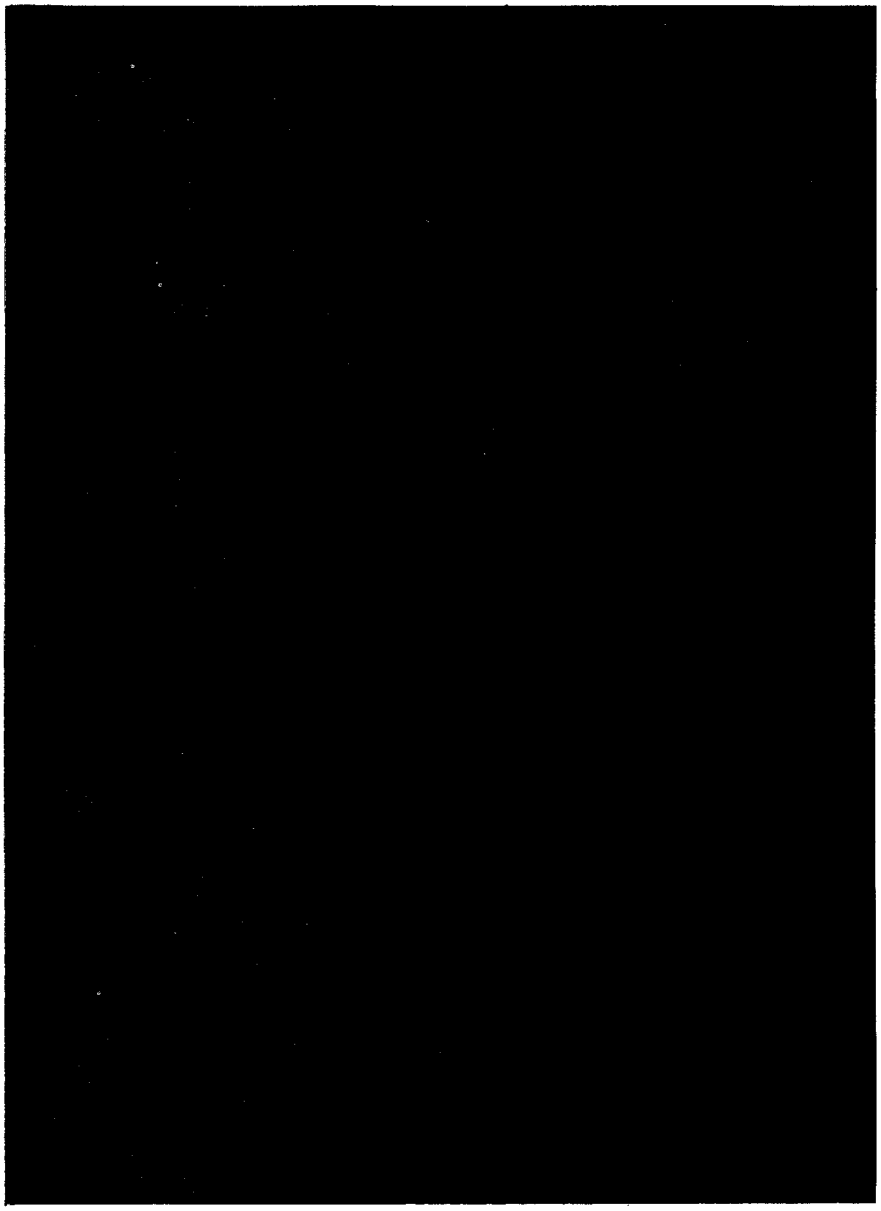
A report issued jointly in May by the National Plant Food Institute and the American Road Builders Association shows the potential involved. The report says that from 250,000 to 400,000 tons of fertilizer could be effectively used for initial establishment of turf and shrubbery on the 41,000-mile national highway system —with another 125,000 tons annually for proper maintenance.

To determine the extent to which fertilizers and agricultural chemicals are now used on road programs, Ag and Food has conducted a country-wide survey of state highway departments. Almost every state, it was found, uses some fertilizer in conjunction with new highway construction. The most frequent ratio cited was 1-1-1 (7-7-7, 10-10-10, and 12-12-12). Others specifically mentioned were 5-0-5, 10-6-4, 8-16-16, 5-2-0 organic, 10-20-0, and 15-15-0.

Besides fertilizer, most states use significant quantities of agricultural chemicals. These are herbicides for the most part –2,4-D, 2,4,5-T, Radapon, Dalapon, Telvar DW, and many others. The first two are almost universally employed. Various insecticides and fungicides find use in a growing list of states. DDT, chlordan, lindane, toxaphene, malathion, lead arsenate, and nicotine sulfate are a few.

Ohio led all reporting states in consumption of fertilizer in 1956 highway construction. The figure for 1957 on Ohio highways will be $125,000. Most of this fertilizer will go into various federal highway programs within the state.

In highway use of agricultural chemicals last year, Ohio was second only to Massachusetts. The latter spent $119,000 last year and plans to spend $169,000 for pesticides on state roads (excluding the federal program) in 1957. Ohio applied some $82,560 worth of herbicides in 1956—primarily 2,4-D and 2,4,5-T. State officials forecast nearly the same program this year, with none of the quantity destined for the federal program. Basic philosophy of the state is that a



fertilizer program should be incorporated with a chemical mowing program.

New York is the second largest user of fertilizer in its road program; 1956 consumption for highways amounted to $92,000 and the state is expected to pass the $100,000 mark this year. Mississippi and Florida also expect to pass $100,000; the latter's plans to use $140,000 worth of fertilizer would put it in first place. Of this amount, $90,000 would be excluded from federal programs. Use of agricultural chemicals in Florida amounted to only $5000 in 1956, but it is slated to triple this year. As one Florida highway official puts it: "We are just getting into the use of weed killers, but fertilizer is being used as a routine requirement."

Various states are spicing their programs with new ideas. Rhode Island is interested in slow-releasing, high nitrogen fertilizer, and is experimenting with selective herbicides and growth retardants. New Hampshire has a limited ragweed and poison ivy control program in effect. Arizona is beginning a vegetation research program on July 1. Tennessee is using agricultural chemicals on an experimental basis this year.

Not all states administer these programs by themselves—some farm out the work to counties or districts. In North Dakota, for example, the counties perform the work and are reimbursed by the state highway department.

It seems fairly clear that as the increase in interstate highway contracts evolves into an increase in construction programs, the over-all amount of fertilizer consumed therein will soar. But it is doubtful that the federal program will have any immediate, great impact on highway use of pesticides. Their influence will develop more slowly; their import lies in future maintenance of these highways.



# Pesticides for Forests

### The potential is large. Why is industry doing so little screening of chemicals for forest pests?

FOREST PESTICIDES (those chemicals that are useful and economically practical for the control of forest pests) are of growing importance to the agricultural chemicals industry. Although total usage is still small relative to other agricultural applications, the potential is very large. Why, then, is the chemical industry doing so little research in this field?

Research certainly is needed. Forest pesticides may sometimes be identical with pesticides used for other agricultural applications, but generally the requirements are widely different. The suitability of a chemical for forest pest control can be satisfactorily determined only on the basis of tests specifically designed for the purpose.

Much research is being carried out by experiment stations of the U. S. Forest Service, by several universities, and by a few large timber companies. Much more is necessary if major damage to forests is to be brought under control. The Timber Resource Review of the U. S. Forest Service gives figures for 1952 which indicate the magnitude of the problem. In that year total timber production in the United States was 48.8 billion board feet; timber loss caused by pests was 31.3 billion board feet or some 64% of production. (Of this total loss, 7.5 billion board feet represents killed trees and 23.8 billion represents loss of growth due to pests.)

There are a number of characteristics which distinguish the forest pest problem. For instance:

- The length of time required for the crop to reach maturity is long compared with that for other agricultural products, and the annual increment in value is relatively low. Thus, while the economically feasible treatment cost increases as the timber approaches maturity, it is relatively low on the average.
- The growing areas are extensive and often in difficult terrain; hence, application by aircraft or similar broadcast methods is necessary.
- In general, development of insect tolerance to chemicals is of less importance than other applications, since retreatment of an area is infrequent.

• Toxicological and residue problems are generally less important than with other crops. The effects on wildlife, fish, and water supplies must, of course, be considered, but the acute danger of ingestion of toxic residues by human beings is not present. In fact, a long-lived residue may be desirable.

• The types of control desired are widely varied and usually different from those needed in other agricultural practice. In addition to insects and disease, damage to trees by animals and plants and destruction of seeds by both birds and animals are economically important. In particular repellents for the porcupine, mouse, rabbit, bear, deer, elk, and mountain beaver would be very helpful.

• Some satisfactory herbicides are available, but new ones may also have to be developed. There are three aspects to forest weed control. First, it is obviously desirable to eradicate weed trees in seeded or planted areas so as to give the young trees a maximum opportunity for growth. Second, some tree diseases have alternate hosts (e.g., currant and gooseberry bushes in the case of white pine blister rust), and killing these may be a satisfactory method of disease control. Third, the conversion of abandoned farmland to tree growing may require herbicides to reduce competition from grasses and brush.

#### *How Great a Potential?*

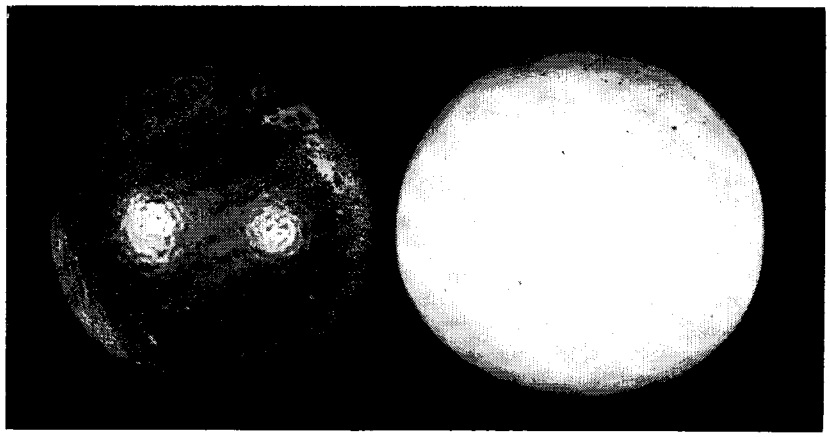
There are 489 million acres of commercial forest land in the United States. In theory, at least, this entire area is a potential market for chemicals, although it is impossible to estimate what this means in dollars. Economically feasible expenditures for forest pest control cover a wide range. For example, intensive control work in a small area to prevent spread of a pest to adjacent stands of timber can justify a cost of $25 per acre or even more. On the other hand, a cost of about $1.00 to $2.00 per acre may be the maximum that is warranted over large areas where timber values and rate of growth are relatively low. But whatever the actual dollar figure, it is evident that the application of chemicals to forestry problems is an attractive market—largely untapped.

The techniques used in the development of forest pest control chemicals—at least in the early screening stages—are not very different from those being used now in other phases of agriculture. Some of the standard test insects should be suitable for screening programs, and the U. S. Forest Service has done much to develop rearing techniques for forest insects that are of particular economic importance. It should not be too difficult to set up repellent screening programs, or to work out methods for the preliminary testing of herbicides.

The chemical industry, however, has generally been content to leave this work to the Forest Service, the universities, and the timber companies. Spokesmen for the industry point out the impossibility of covering all of the potentials at any reasonable cost. Some estimates place the cost of a really comprehensive program of this type at more than $1.5 million annually, exclusive of capital investment.

Other observers feel that useful results could be obtained for a very modest outlay. One forester suggests:

"One professional entomologist with



Duncan grapefruit on the left received an oil-parathion spray in July 1956. Fruit on the right got a spray of oil-parathion and zineb on the same day

## Citrus Russet, New Job for Zineb

The citrus industry feels it has found in zineb a startling new cure for one of its plaguing headaches—russet. This rust-like discoloration lowers marketability of citrus, particularly grapefruit and Valencia oranges.

In use for more than 10 years as a fungicide for many truck crops, zineb (zinc ethylene bis-dithiocarbamate) had not been applied to citrus until Francine E. Fisher at the University of Florida's Citrus Experiment Station, Lake Alfred, began work in 1955.

Zineb-treated pineapple oranges were 95% bright when examined the following winter; those sprayed at the same time with lime-sulfur plus wettable sulfur were only 85% bright. Valencias six months after the zineb spray were 90% bright; with the lime-sulfur spray, only 20 to 50% stayed bright. Bright fruit on trees not summer-sprayed at all amounted to only 20% of the total.

Last summer Miss Fisher extended her tests to 200 acres, to determine dosages.

Although the outlook for zineb treatments is bright, Miss Fisher cautions against immediate universal adoption of the new spray, since so little is really known about this use of zineb (for example, its activity under extremes of Florida weather). But citrus growers, not generally famous for their conservatism, have been spraying zineb since February, even though no tests have been made for that month.

In July the state's biggest producer, Minute Maid (which cooperated in the testing program) will spray 186,000 pounds of zineb on 12,000 to 13,000 acres of fresh-fruit groves and areas troubled by "greasy spot."

It appears likely that a good portion of Florida's 15,000 growers, mostly independents with groves of 15 to 1000 acres—will go all out on zineb in 1957, according to Robert C. Dancy of Tampa's Jackson Grain Co., one of the state's major suppliers of agricultural chemicals.

The two basic producers of zineb are Rohm & Haas (Dithane Z-78) and Du Pont (Parzate). Spraying the half-million or more acres of groves which appear to be in for treatment within the next year or so could mean an annual business of perhaps $3 or $4 million.

one or two good subprofessional helpers and very few added facilities could fit very readily into an existing agricultural chemicals screening program."

THERE IS TODAY no direct chemical control for virus diseases of crops. Not that they go entirely unchecked. Using virus-free seed and stock and controlling insect vectors have both proved useful against certain virus diseases. Also useful are resistant varieties, which have proved quite effective for a number of specific crops and virus diseases. But none of these seems to be the final answer. Nor do any have the potential usefulness that direct chemical controls might have.

Such chemicals would go after the virus after it got into the plant, either killing it or inhibiting its growth. Enough is known about viruses to suggest that control chemicals would almost certainly have to be systemics. Highly efficient ones. Enough is not known about viruses to suggest that controls might cost a good deal to develop.

The need might well justify the cost. Wheat streak mosaic caused roughly a $30-million loss in Kansas alone in 1949. Since then it has cost U. S. wheat growers an average of perhaps $10 million a year. (Just this spring, after a three year search, USDA named the wheat curl mite as probably the only carrier of the disease in the Great Plains.)

You can find other examples easily enough, but it's hard, sometimes, to measure the losses in dollars. For one thing, virus diseases can be quite insidious. Grape leafroll, a newly noted one, seems widespread in the West; it can reduce sugar content in vines by up to 40%. Yet diseased vines have gone unnoticed for years. USDA finds that viruses can cut ladino clover yields in the greenhouse by more than 40%. But most farmers graze their ladino, thus have no good check on yield.

Finding virus control chemicals poses many problems, but one looms above all others. Plant viruses depend on their hosts' metabolism for growth. Thus, a chemical that kills or inhibits the virus is apt to do likewise to the plant.

For instance, thiouracil and other substituted pyrimidines are known to inhibit virus growth. Thiouracil does it by competing with normal uracil for a position in the ribonucleic acid that forms the virus core. But at the same time it competes for a position in the plant's RNA, thus inhibiting plant growth too.

Another approach is to block enzyme reactions which lead to virus multiplication in the plant. Here, apparently, is where malachite green gets its activity against tobacco mosaic virus and potato X virus. But again, blocking enzyme reactions is likely to interfere with the plant's growth.

No one knows enough yet about viruses themselves to say how a chemical—or what kind of chemical—might stop a virus without harming its host. However, some chemicals approach this action closely enough to sustain the hope that it can be done. USDA finds that furfuryl carbinilate inhibits symptoms of southern bean mosaic almost entirely without hurting the plant. It inhibits them entirely with only slight harm to the plant.

### More Troubles

Good virus controls will have to be excellent systemics so as to get at the virus wherever it hits the plant. But by and large, screening programs worry first about the major problems, second about systemic action.

Problems raised purely by the nature of the virus are not the only ones. Chemicals which attack viruses might be dangerous, if eaten, to men and animals. Their toxicology and residual life, especially if they were systemic, would have to be studied thoroughly. More than the usual effort (and money) might thus be needed to get FDA registration for use on food crops.

There are mechanical problems. Screening and other virus research techniques are still not all they could be. The most important plant viruses, economically, are those that spread fastest, i.e., those spread by insects. So besides working with the virus itself, one must rear and infect insects and maintain at least several dozen plants to try them on. One solution here is to work, when possible, with viruses that can be spread both mechani-

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On the economic side it may be hard to tell how much farmers could really afford to pay for a direct virus control. Cost of present indirect controls may not be a good guide because USDA and other agencies pay for most of them.

Dollar losses to viruses are not a direct guide either. Imperial County, Calif., dropped between $5 and $10 million (in flax, sugar beets, vegetables) to curly top disease last year. Further north in California, where comparable loss might be expected, the state's spray program (mostly DDT) on beet leafhoppers, the curly top vector, held vegetable damage to less than 1%. Spray costs ran about $350,000. (Imperial County suffered chiefly because of year around planting and harvesting of sugar beets, the leafhopper's best breeding ground.)

Another problem is that a good control, used on infected plants, might soon stop the spread of the virus, thus drying up the market. This possibility alone is said to have deterred some chemical firms from spending much on virus work. On the other hand, virus diseases which spread quickly, such as curly top in tomatoes, would need annual treatment, and hence provide a continuing market. Also weed hosts act as reservoirs for many viruses. This situation should further strengthen the need for annual use of virus control chemicals on economic crops, which would be their primary point of use. Chemicals-screening programs seem relatively few among universities and experiment stations, though many of them are working on other aspects of the virus problem.

### Some are Trying

Despite the bug-a-boos, a spot check shows some work going on. Shell Development has an active chemicals screening program. Stauffer has no program at the moment, but says it may start one soon. USDA has an active chemicals program besides its work on indirect controls.

Actually, most of today's virus research is directed at the nature of the virus itself. Cancer, poliomyelitis, and other diseases are known or believed to be caused by various viruses; hence this kind of research is being done chiefly by nonagricultural people. But since plant and animal viruses are alike in many ways, the seed of an agricultural virus breakthrough could well come from this direction. In fact tobacco mosaic virus, which is relatively amenable to this kind of research has been the subject of a great deal of it by both agricultural and nonagricultural workers.

When someone will come up with a really good direct chemical control for plant virus diseases is a moot question. In the light of what's now known about viruses, one expert believes it could be next month, 10 years from now, or anywhere in between.

# Common Names For Pesticides

**New committee of American Standards Association organizes to register common names for new pesticide chemicals**

Between 1947 and 1954 the Government's Interdepartmental Committee on Pest Control, in cooperation with industry and other interested groups, approved common names that could be substituted for the chemical names of pesticides in all industry, government, and technical publications. Industry took advantage of this service, and producers of pesticide chemicals obtained approval and nationwide recognition for many common names used today, such as toxaphene, malathion, and aldrin.

Since 1954, when this service was discontinued, there has been no recognized procedure whereby names for pesticide chemicals could be approved and registered.

In a move to fill the void, the American Standards Association has just started, on a trial basis, a new service for registering common names for new pesticides. Names will be accepted through the ASA Committee on Common Names for Pest Control Chemicals, K62.

ASA, the national clearinghouse for voluntary engineering, industrial, safety, and consumer standards, is a federation of 118 technical societies, trade associations, and consumer groups. Individual company members total about 2300. It is also the U. S. member of the International Organization for Standardization.

Short names, easy to say and easy to remember, are often coined to replace long and complicated chemical names. Usually these names are called "trivial" names, especially if they have no official sanction. But if a short, easy name meets with the approval of industry and technology, it is used universally and is called a "common" name. Common names apply only to reasonably pure chemicals, 100% concentration—not to mixtures or formulations. They make it easier for industry to convey information in its labeling, selling, technical services, and advertising programs.

Even so, there seem to exist among manufacturers differences of opinion on the value of common names. Some like them, some do not. However, more producers of pesticides can be expected to favor their use as new names are introduced. For one reason, ASA-approved common names will be acceptable to USDA and other federal and state agencies concerned with labeling and with recommending uses for pesticide chemicals. Trade names cannot be used for these purposes.

In choosing common names for new pesticides, ASA expects to work closely with industry. Normally, a new chemical eligible for a common name would be the exclusive property of one company. But should it develop that more than one producer is interested in naming the same compound, both will be consulted before a name is assigned. Industry will also be consulted on names in the event a new pesticide originates in the Department of Agriculture. The ASA committee intends that names selected will not be conducive to the use of abbreviations or nicknames, and will not introduce confusion between the common name and established chemical nomenclature.

A standard will be published for each common name approved as an American Standard Common Name. The standard will announce the common name of the new chemical for general use and will include information, furnished by the sponsor of the name, on physical and chemical properties of the chemical and on its proposed uses.

### *Application Procedure*

ASA acceptance of a common name requires first a formal statement of application from the sponsor of the new name. The procedure for applying is given in "Acceptance of an American Standard Common Name for a Pest Control Chemical, K62.21956," published by ASA, 70 East 45th St., New York 17, N. Y.

An application fee of $300 must accompany the statement of application. The fee, charged to defray expenses of the committee, is not refundable, nor does it guarantee acceptance of a name. It does assure that the statement will be given full consideration by the committee.