West's Sales Up, Competition Keen, Attack on Soil Pests Major Technological Advance

THAT UNDERCURRENT of optimism in Western pesticide circles earlier this year (AG AND FOOD, March 1955, page 206) may not have become a full flood by now, but it's definitely strong at summer's end. In a word: Sales are up.

Opinions are not unanimous—one company president estimates 1955 volume will equal 1954—but smiles crease sales managers' faces more often than not. For example: One for a basic producer estimates his volume is up 10 to 15% over 1954; another notes his first quarter pesticide solubilizer sales were up 30%. But while volume generally seems to be up, nearly everyone believes profits will about equal those of 1954. (When confronted with this statement, one basis producer was led to comment: "Well, our profits are up over 1954, and we are surprised other manufacturers didn't have the same story to report.")

Rising sales are not due to infestations. Except spotted alfalfa aphid in California, no new and widespread pests face Westerners. And actually, cotton, a major California-Arizona crop and a big outlet normally, was "clean" and using little insecticide as of late July.

Best reason advanced for the upswing —the West is enjoying a good agricultural year. Fruits, for instance, are cashing in on severe spring freezes in the South, and California vegetables are also bringing good prices. With high income in sight, growers are protecting their investments.

But not all products are profiting equally. Cool weather through late spring and early summer favored fungi and deterred insects; fungicide sales are up accordingly. In Hawaii, malathion is up over 1953 and 1954, primarily because of lower toxicity; parathion sales, however, have not dropped. Dalapon is displacing TCA there, and Karmex W is depressing 2,4-D. Elsewhere in the West, malathion is up at the expense of parathion, toxaphene is enjoying a good year, and the Shell triumvirate dieldrin-aldrin-endrin is making further inroads on DDT and BHC.

Sales may be up, but competition is keen. Consignment selling and price cuts are more serious than last year. One basic producer notes it is practically impossible to sell pesticides as such any more, estimates 90% of business is now on consignment. The number of salesmen in the field is up, especially for the smaller companies.

DDT and BHC, perennial drugs on the market of late, suddenly became scarce at midsummer because of Government exports and increased use in the cotton South. DDT, selling 5 cents under book early in July, firmed up at month's end, while BHC's price firmed slightly earlier. With demand on California-Arizona cotton down, however, scarcity was no hardship to Westeners, and most are protected by contracts signed earlier this year. All producers agree their capacity would be adequate to care for even a moderately severe and unexpected increase in Western demand.

Westerners Move in on Soil Pest Complex

The soil pest complex, major unsolved problem facing agriculture (AG AND FOOD, March 1955, page 202–05), is under three-pronged attack in the West this year, with three basic producers having chemicals at various stages of development. Shell Chemical is apparently furthest along toward commercial use by agriculture with its nematicide Nemagon (1,2-dibromo-3-chloropropane) up for limited commercial sales on citrus, cotton, and grapes. Shell plans nationwide marketing for Nemagon next year.

Stauffer, meanwhile, has introduced Vapam 4-S (sodium-*N*-methyl dithiocarbamate) to home garden and nursery trade in California. There has been insufficient field testing to recommend Vapam for unlimited large-scale fumigation by the agricultural trade at this time, but the potential is there. Stauffer is offering experimental samples to agriculture this year in a four-pound-per-gallon formulation.

Vapam, says Stauffer, gives control varying from "excellent" to "promising" over a broad range of pests—all nematode species investigated, fungi, bacteria, soil insects, and weeds. It decomposes in the soil to an isothiocyanate, as do other carbamates such as nabam. In contrast to these others, however, Vapam releases a volatile and highly diffusible isothiocyanate which is effective as a soil fumigant. It vaporizes from the soil, thus permitting early planting. Stauffer looks to seed bed fumigation and certain other special markets for first large agricultural uses.

While Shell and Stauffer are introducing these new soil pest controls, Rohm & Haas is adapting an older chemical, zineb, to a new use—cotton seed furrow treatment. Failure to get a good cotton stand is usually due to what are known collectively as soil seedling diseases. Normal California-Arizona cotton practice is to plow under and replant if a good stand is not obtained. Rohm & Haas began field testing zineb for seedling diseases in 1952, announced itself ready for more extended commercial trials this spring. California cotton growers treated about 10,000 acres this

Rigs such as this applied zineb to cotton seed furrows on 10,000 acres in California this year. Inset shows application details: Seed drops into furrow right behind plow, after which it and furrow get sprayed with zineb (white area under tube); chain drag closes furrow

Left: Sparse growth in tomato seed bed at Lodi, Calif., due to damping-off fungi and nutgrass. Right: Another section of seed bed treated before planting with a quart of Vapam per 100 sq. ft. No weeds, no damping-off

year with little fanfare on Rohm & Haas' part.

Besides these soil chemicals, several other new products are coming out this year. Geigy is introducing chlorobenzilate, a mitacide, and diazinon, a fly spray which may find use later for other pests. Rohm & Haas has FW 293 [1,1 - *bis*(chlorophenyl)trichloroethanol] in full scale field trials on mites. (Mite and codling moth resistance to present chemicals are serious problems in nearly all major agricultural areas of the West.)

Organic fungicides—captan, zineb, ziram, for instance—continue to replace copper types to an ever greater extent, moving especially into leaf curl control on peaches and scab control on apples. Hawaii's pineapple industry is giving captan full-scale field trials this year for heart rot control.

Systemics, principally Systox, continue to forge ahead in both California and Arizona for mite and aphid control on cotton, aphid control on alfalfa seed crops. In Washington, the systemic increase expected several years ago, especially on fruit trees, has not arrived. Systox on seed alfalfa, however, has been successful there, might be even more so as preliminary work at WSC's Prosser experiment station shows hullings are safe for livestock feed. Up in British Columbia, systemics are still being limited to greenhouse ornamentals, while down in New Mexico, they have declined. Price, toxicity, residue problems, and relatively poor results on spotted alfalfa aphid are reasons cited.

Antibiotics have gained their greatest toehold in California, particularly on pears, but use cannot be called "commercial" yet. In Arizona, experimental work on antibiotics is behind that in other states, but the outlook is termed "encouraging, with possible commercial use in 1956" for fireblight on deciduous fruit trees and ornamentals. And in New Mexico, the extension service has supplied terramycin to pear growers for experimental use the past two years. Results to date "may put New Mexico back into the pear growing business."

Aphids, Hoppers, and Flies Attack West

The spotted alfalfa aphid, formerly called the yellow clover aphid in the West, "is proving to be the most serious pest in California alfalfa history," says H. M. Armitage, chief of California's Bureau of Entomology. First disastrous aphid attacks in the West came in New Mexico in 1954, where losses were estimated at $4 million. Infestations in Arizona were likewise serious that year. Found first in southern California in February 1954, the pest spread to the northern end of the San Joaquin Valley by this season. Parathion, malathion, and Systox have given good control, and by summer's end the threat to California's $100 million hay industry appeared to be on the wane.

About 1.75 million acres of grasshopper-infested rangeland in parts of the 11 western states will be treated during the 1955 control season. USDA estimates hopper control on ranges and crops has saved over $1 billion since 1935.

To the south along the California-Mexico border, Mexican fruit fly control measures, under way since early 1954, continue. Early this year, malathion was substituted for tartar emetic, eliminating the need to respray following rain and making it possible to maintain regular three-week intervals between applications.

While active spraying continues to keep the pest out of California's rich agricultural lands, USDA entomologists are investigating possible insecticide-fertilizer combinations for fruit fly control. Only preliminary laboratory studies of soil insecticides have been completed, but results are encouraging. Isodrin has proved most effective; aldrin and BHC show considerable promise. Emergence of adult flies is not prevented by this treatment, but emerging flies are short-lived. USDA hopes field studies during this year's mango fruiting season will give results as promising as those obtained in the preliminary lab tests.

Sales Up in East, Despite Unfavorable Weather and Decline in Farmer's Income

LATE SUMMER estimates of sales of agricultural chemicals in the New England and Middle Atlantic states this season indicate an ultimate volume greater than that of the past two seasons. One producer of pesticides reported sales up 20% over last year. Another basic producer of a limited line of pesticides commented: "Our sales of pesticides in this area for the 1955 season are up considerably compared with 1954. However, our products are relatively new and their sales increases are rather sharp at present."

Most basic producers contacted echoed this optimistic appraisal of this year's eastern seaboard sales. Only one company reported lower sales and this was attributed to the early spring freeze.

Sales then were evidently better despite unfavorable weather. The effect of weather on the pesticide industry has been more pronounced this summer than in recent years. Drought conditions in New York reached such proportions by late July that Governor Harriman appealed to Agriculture Secretary Benson to declare certain regions around the Finger Lakes as a drought disaster area. Rainfall averaged less than one third of normal for several months; temperatures soared into the nineties day after day.

The hot, dry weather held back insect and fungus infestations in many areas. It also caused some set-back in the introduction of pre-emergence weed control on cotton. The weed problem proves far less serious in dry weather and the results are not as striking. Then too,