

definite conclusions from their tests, or that mechanical mowing is still the cheapest method.

Ten other states have programs which vary from extensive field tests to full scale treatment (75% of their road mileage), but all of these indicate they expect little or no increase in herbicide consumption for perhaps the next four or five years. California, for example, used approximately 500 tons of sodium chlorate and a like amount of borate-chlorate mixture during the past four years, working over more than 2000 miles of a fire control strip, and as part of a soil sterilization program around guard rails, sight and sign posts, bridges, and other roadside structures. State officials say they were able to cut back on soil sterilization last year; the department consumed only 15 tons of CMU, 60 tons of sodium chlorate, and 60 tons of borate-chlorate mixture. California also uses an estimated 300,000 gallons of aromatic weed oils annually to control weed growth among plantings along median strips between divided highways, and in other landscaped highways plantings. Ohio is near the top of the list in chemical weed control; this state plans to spray almost 8400 miles of highway (45% of the system) in 1955 with more than 17,000 gallons of 2,4-D and 3000 gallons of 2,4,5-T.

Kentucky officials say they do not plan any changes from present practices; the opinion in South Carolina and Ohio is that the President's proposed highway construction program will have little impact on herbicide consumption. Most roads to be built under this program will probably be sloped and sodded. Weeds are not a primary concern on new highways; Ohio avoids spraying such sections for a period of two years following completion in order to allow newly seeded areas to mature. Colorado, New Mexico, Tennessee, and Washington are among the states that do not expect an appreciable increase in their herbicide consumption during the next several years.

Custom Application Helpful

The McMahan Bros. of Binghamton, N. Y., have been very successful with their custom application work. One of the most interesting cases is a county-wide effort to control ragweed in Sullivan County. Every state, city, and county highway in the area was sprayed at a cost slightly under \$10 per mile (comparable mowing costs are estimated at \$70 per mile). This company has developed effective and economical equipment for roadside spraying which will cover up to 24 feet along the right of way, and is quoting a price of \$29.50 per mile (16 feet on both sides of the road) for three separate sprayings. Raymond J.

Right of Way Acres		
ROADSIDE WIDTH	ROADSIDE LENGTH	AREA
16 feet	907 yards	1 acre
20 feet	726 yards	1 acre
30 feet	484 yards	1 acre

McMahon says single spraying is generally unsatisfactory; a good program should include three sprayings per season, for three consecutive years.

U. K. Fertilizer

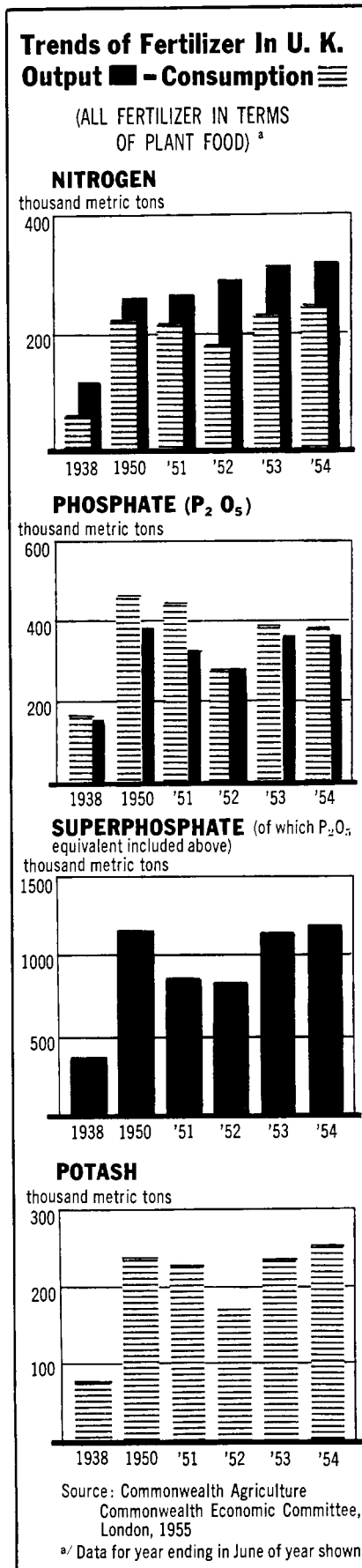
Postwar increase in production and consumption is continuing but usage still below that of many continent countries

PRODUCTION of fertilizers in United Kingdom is continuing its wartime and postwar increase after a temporary interruption in 1951 and 1952. A 25% drop in sales during this period was occasioned by removal of government subsidies on fertilizers; demand, however, picked up sharply upon restoration of the subsidizing program. Data recently released by the Commonwealth Economic Committee for the year ending in June of 1954 show that the recovery continued during the past year.

Farming acreage in U. K. is about the same as in 1939 though food production is 50% greater. The increased yield is chiefly attributed to greater use of fertilizer, which last year was three times that of prewar. Even so, actual use is far below that of many continental countries. In a report issued last year, OEEC showed that if amount of fertilizer used per acre of grassland (which amounts to 40% of England's agricultural area) is taken as 100 in U. K., it is 424 in Belgium, 274 in Holland, 231 in Norway, and 168 in Denmark. The Ministry of Agriculture estimates that U. K. falls short of optimum usage by 100% for nitrogen, 20% for phosphorus, and 45% for potash.

U. K. production of nitrogen was heavier last year than ever before and was more than 2.5 times as great as before the war. Phosphates (in terms of P₂O₅), which had suffered sharply in the off-years of '51 and '52, approached the record production that occurred in 1949-50. Production of superphosphate follows the trend established by total phosphates.

The intensive diversified agriculture of U. K. calls for a high rate of application of nitrogen, phosphates, and potash. In





From cake to clothing

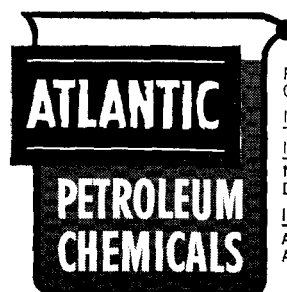
Anhydrous Ammonia, one of Atlantic's many petrochemicals, may have an important part in producing the food you eat, the clothing you wear, dozens of things you depend on for better living. That's why you see the miniature oil refinery in the illustration.

This new member of Atlantic's chemical family has a variety of uses. On the farm, for instance, Anhydrous Ammonia is released into the soil where it supplies vital plant food to increase crop yields. Its use in the manufacture of synthetic fibers means new and better fabrics for clothing of all kinds.

Manufacturers rely heavily on ammonia for the making of hundreds of products . . . nitric acid in one plant, explosives in another, plastics in a third.

Anhydrous Ammonia is only one of the many chemicals, produced by The Atlantic Refining Company, for which industry of all kinds is constantly finding new uses.

Atlantic sales engineers will be glad to work with your technical personnel to help improve quality, reduce costs, or develop new products. Write for information; just ask us how Atlantic petrochemicals can be helpful to you. The Atlantic Refining Company, Dept. K-6, 260 South Broad Street, Philadelphia 1, Pa.



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Antwerp, Belgium

other Commonwealth countries, requirements are quite different, as in New Zealand, where most productive farm land is permanent pasture and requirements for potash and nitrogen are small, but application of phosphates relatively heavy.

The expansion of the chemical fertilizer industry has had its effects on the export-import picture, both in raw materials and finished products. With the increased nitrogenous fertilizer production, produced from domestic raw materials, imports last year dwindled to a negligible amount. Phosphate rock is brought in from Algeria and Tunisia and almost sufficient phosphatic fertilizers are produced in Britain from these imported raw materials to supply her requirements; balance of phosphatic demand is supplied from imported finished product.

Late last year, 40% of the sulfuric acid produced in U. K. was being used in production of fertilizers, 25% to make superphosphate and similar phosphatic fertilizers and 15% for ammonium sulfate and other nitrogenous fertilizers. Imports of sulfuric acid exist only in form of raw materials. By last year, the acute scarcity of elemental sulfur had largely been solved. Nevertheless, development of the use of substitute raw materials continues in order to protect the expansion of the superphosphate industry. During past two years, the output of sulfuric acid industry has gone to satisfying U. K. requirements, greatly affected by increased fertilizer output, and exports of sulfuric have fallen sharply.

The U. K. fertilizer deficiency is most noticeable in potash. All potash rock is brought from the Continent, chiefly from France. In this respect, England suffered a great disappointment this year. ICI for the past seven years had been conducting exploratory work on large deposits which exist in North Yorkshire. Existing as sylvinites at 4000 feet below ground surface, deposits had been estimated to be sufficient to supply U. K. total requirements for 200 years, if extracted at 30% efficiency. ICI, which had spent over \$1 million on the project,

Congressman Miller: Two bills—one injunctive and one compromise



was not successful in developing a method of extracting the KCl, because of different solubilities of the two salts in sylvinites, and announced that it was abandoning the project. Fisons, which had been involved in the work along with ICI, has not indicated whether or not it will continue in an effort to find a way to make England independent of potash imports.

Food Additives Bills

Injunctive or licensing approach? New bills tend toward compromise with arbitrary powers of FDA limited

Licensing" power, or something near to that, for the FDA was characteristic of food additives bills early this season (Ag and Food, April 1955, p. 292). But near the end of April, Congressman Miller (R., Nebr.) took a different approach, aimed at reducing considerably the powers of FDA. Miller will soon introduce a compromise measure. Another bill, developed through collaboration of several interested groups, is reported nearly ready.

The licensing approach is favored by some groups within the food industry as a possible solution to the problem of food additives. These groups acknowledge that some food additives are necessary but would limit them as much as possible. The pre-Miller proposals all would require the manufacturer to present evidence that a proposed additive were not harmful but would leave the final decision of approval or disapproval of the additive up to the FDA.

Congressman Miller's bill HR 5927, in contrast to the existing proposals, is an expression of the "injunctive" point of view. The Miller proposal would not increase materially the arbitrary power of the FDA. Proponents of the injunctive approach believe that the FDA should remain fundamentally a policeman of the nation's food; as a policeman the proper weapon for operation of the FDA is the injunction.

Under congressman Miller's bill, a manufacturer whose application for approval had been turned down could override the FDA and announce that he intended to market an additive without approval of the Secretary of Health, Education, and Welfare. The secretary through the FDA would then go to court and get an injunction to restrain the manufacturer from using the additive. The FDA would subsequently be forced to present evidence to prove that a material could do harm if used. In effect

the injunctive approach would require the FDA to prove the possibility of harm, in cases where the FDA did not accept the manufacturer's evidence that a proposed material could be used safely.

The Miller proposal would require the manufacturer to prove a proposed ingredient safe for food use. The difference between safety and harmlessness is of more than semantic interest in the question of food additives (See AG AND FOOD, page 191, March 1955). Safe and safety are defined by the Miller bill to mean without reasonable likelihood of hazard to the public health under normal conditions of use.

Congressman Miller intends to modify his original proposal in the near future. The modified bill will be an attempt at compromise between the two extremes of licensing vs. injunction.

Miller's new bill will cover additives in current use as well as proposed additives. Scientific evidence of the safety of a proposed additive must be forwarded to the FDA with the application for approval of the material. The FDA can then refer this scientific evidence to a committee of scientific experts for evaluation. The expert's opinion is presented to the Secretary of HEW, who in turn makes the final decision regarding approval of the additive.

The Secretary of HEW is responsible for deciding if the evidence presented by the manufacturer is adequate and also whether or not the additive would be safe for food use.

Under the new Miller proposal a manufacturer could go ahead with an additive over the objection of the Secretary, if the advisory committee had decided that the material were safe. This provision of the bill would be an assurance that the Secretary would not make unreasonable or illogical demands upon the industry. It would also place a limit on the degree of arbitrary power which the FDA would have over the food additives.

The Miller proposal would, in effect, place the final evaluation of the safety of an additive before a committee of scientific experts for scientific evaluation.

Of the bills which have been presented until now the Miller proposals seem to be more nearly an expression of the thinking of those who have an active interest in the future of chemicals in foods.

There are indications that another compromise proposal to be sponsored by the Manufacturing Chemists Association in cooperation with some food group may be presented in the near future.

Congressman Priest, Chairman of the Interstate and Foreign Commerce Committee, is still planning to conduct hearings on the food additives question before Congress adjourns. The question might come up toward the end of June.