probably will increase 40 to 50% during the third quarter of this century. This will call for production increase during that period equal to the increase effected during the preceding 25 years. The main question is how to increase output most efficiently and at low cost. It was estimated that the increase of crop land probably will not be economically practicable beyond about 10%. Attention was called to the observation that with some crops we have reached a plateau in the curve of production increases which can be effected through the application of existing scientific knowledge. While more effective efforts to bring improved techniques into application—increased use of fertilizer, agricultural chemicals, machinery, and other technical aids—can be an important factor, we must increase our basic knowledge by further research.

More Fertilizer Use Needed. The use of greater amounts of fertilizers, including minor elements, was emphasized as a great need. This was called for not only on the basis of economics, but also of social responsibility for nutrients are being removed from the soil faster than they are being replaced. Understanding of the optimum combination of uses for land was generally considered far below that which is needed and particular attention to research was urged for this matter.

Water-surfaced lands were pointed out as under-rated sources of both recreational and food production values. There are about 30 million acres in the United States covered with water. Much better recreational use could be made of this land and food and fur production use is significant and increasing.

Timber and Wood. Research in fire prevention and control, pest control, reforestation, and forest management is a federal responsibility in the opinion of a majority of the participants in the discussion in the timber and wood products subsection, but it is not exclusively so. Private industry should give greater attention to applied research, it was agreed, while government should concentrate on basic studies. But it was noted that recent trends in both bases have been in the opposite directions. The areas of greatest need for research appear to be in pest control; watershed management; biology, including forest genetics; utilization of low quality woods; and economic aspects of forest management.

A good transportation system appears to be the most severe need to aid prompt and full utilization of the resources of our national forests. Other outstanding needs are simplification of timber sale procedure, speedup of timber inventories, and more advanced engineering and timber management planning.

Direct Application of Agricultural Ammonia to Double by 1956

New crops and new geographic areas to benefit increasingly from improved supply and distribution pattern

ST. LOUIS.—One of the agricultural industry's youngest offshoots again proved itself one of the fastest-growing, when the Agricultural Ammonia Institute paused to take stock at its third annual meeting here last month. Although the use of anhydrous ammonia for direct application to the soil had its commercial beginning only in 1947, annual volume has already increased to a level of 250,000 tons and is expected to reach 500,000 tons per year by 1956. The AAI itself, only three years of age this month, has paralleled in growth the chief stock in trade of its member companies. Members now number over 300, and nearly 700 persons attended the St. Louis meeting.

Rapid growth of the agricultural ammonia industry has been accompanied—and promoted—by a broadening of the geographic scope of its operations. From its early start on cotton in Mississippi, where a practical, efficient method of applying anhydrous ammonia to nitrogen-hungry cotton was perfected, it spread to other southern crops—corn, sugar cane, small grains, and pasture grasses—and into the nation's "bread basket," the Great Lakes and Great Plains farming regions which produce most of the nation's corn and wheat. Vegetable growers in the East similarly recognized in anhydrous ammonia a simple and efficient means of improving the productivity of their land. Attendance at the St. Louis meeting of ammonia dealers and prospective dealers from the Mountain and Far Western states indicated that agricultural ammonia has now found its way into virtually all corners of the land.

Predicting that agricultural ammonia would double its current application rate of 250,000 tons per year by 1956, Grace Chemical Co.'s C. J. Bown indicated that the industry's worst growing pains are past, and that with continued effort and attention to proper application the future potential of the industry is almost without limit. Bown's firm, the recently-formed Grace Chemical Co., typifies the industry's optimism toward the future; the company's new $20-million plant now under construction at Memphis, Tenn., will begin production of 72,000 tons of ammonia per year by next fall.

Already established as an adjunct to the improved growth of corn and cotton, said Bown, agricultural ammonia also shows much promise of providing similar benefits for other crops, and in time should gain a preferred place for use on a number of them. In most situations, he noted, anhydrous ammonia is equivalent to other sources of nitrogen for all crops. In general, it appears that agricultural ammonia will be most advantageous if:

1. The crops under cultivation require fairly high levels of nitrogen for optimum yields—corn for example.
2. Other plant nutrients are adequate, and only nitrogen is required for the soil under treatment, as in the Mississippi delta.
3. Medium to large acreages are to be treated.
4. The necessity for nitrogen side dressing is indicated by soil tests.
5. Special application methods, such as flood irrigation, are to be used.
6. The crop under treatment is one which prefers the ammoniacal form of nitrogen, as does rice.
7. Fall application for spring crops seems advantageous.

Agricultural ammonia naturally has its limitations, Bown cautioned, and should not be used in fields where soil conditions hinder direct application. Tight clays and steep or stoney land do not lend themselves well to direct ammonia application, and if the application equipment proves harmful or destroys a portion of the crop, other methods of fertilization are obviously preferable. The rapid broadening in the range of use for agricultural ammonia should continue, said Bown, as educational programs take effect in areas which have previously had very little or no ammonia available for use.

It is significant, Bown noted, that ammonia producers are currently much more interested in selling to the agricultural ammonia industry than they have been in years past. The industry has proved itself to be economically sound and to have a large growth potential; producers thus have come to look upon the industry as a solid, permanent market, rather than as an outlet for occasional surpluses. With this realization have come marked improvements in distribu-

tion patterns, enabling anhydrous ammonia users to secure required amounts of the material at the proper time. The trend toward fall application of ammonia, he added, will assist measurably in smoothing out the seasonal consumption curve, and thus will improve further the efficiency of distribution of total ammonia supplies.

In his annual message as president of AAI, J. I. Davis, Jr., of Selfco predicted that the use of anhydrous ammonia will continue to be extended to additional crops and to additional areas and that improvements in handling methods and equipment, developed by the industry itself, will lead the way toward combining two or more farm chores into a single operation, at lower over-all cost to the farmer. The direct method of ammonia application can accommodate itself to the changing agricultural scene like the glove on a hand, Davis noted, and can therefore play an important role in helping the farmer to counter economic setbacks. Farmers have had a rather bad year in 1953, Davis noted, but they still made money and are still in good shape. Although they are currently caught in a price squeeze, he commented, further declines in commodity prices seem improbable, and prices might in fact be expected to rise somewhat.

Industry

Shell Changes Name of Julius Hyman Division

Shell Chemical Corp. plans to change the name of its Julius Hyman & Co. Division to the Agricultural Chemicals Division on Jan. 1. L. V. Steck, Shell's marketing vice president, says the name change affects only the sales organization. The Denver plant will continue to be operated by Julius Hyman & Co.

Loamium Says U. S. Rubber Can Substantiate Claims for Kem-Kut

Loamium Co., in denying Federal Trade Commission charges that its advertising of Kem-Kut is misleading, has stated that its advertisements and representations about the growth regulator are those of U. S. Rubber Co., from which Loamium purchases the maleic hydrazide for packaging under the Kem-Kut trade name.

Loamium says that the advertising of this product result of laboratory research is "proven beyond doubt." Loamium, a partnership consisting of Malcolm E. Smith, Jr., Casper Pinsker, Jr., and Richard H. Davimos, said it believes U. S. Rubber can and will substantiate the claims made for Kem-Kut.

On The Cover

Technology in the Aloholic Beverage Industry

Twenty years ago this month, the Utah legislature approved the 21st Amendment to the Constitution, thus effecting repeal of prohibition. Since that time, the alcoholic beverage industry, among the oldest industries to apply the principles of biochemistry, has instituted many technological reforms in its processes and products.

In addition to developing its former waste products into valuable livestock feed, improving its equipment, and gaining a better understanding of the chemical and biochemical processes it uses, the fermentation industry also provided the technological basis for putting antibiotics into rapid production during World War II.

FTC charged that Loamium misrepresented the effectiveness of Kem-Kut in producing an even, green, thick, and luxurious lawn which requires no mowing. No date has been set as yet for hearings on the subject.

Philipp Bros. to Market Udet Surfactants in East

Philipp Bros. Chemicals, Inc., has been appointed eastern distributors in the agricultural field for Universal Detergents, Inc. Sales of the Udet F surfactants used in fertilizer and pesticide formulating will be directed by K. D. Morrison, vice president of Philipp Bros. Stocks will be maintained for service in entire area east of the Mississippi.

Cyanamid to Double Anhydrous NH_3 Capacity at Fortier Plant

American Cyanamid announces that it will double the presently planned capacity for anhydrous ammonia at its Fortier plant now under construction near New Orleans. This will bring total capacity to 300 tons a day.

The $50 million plant will produce nitrogen chemicals from natural gas. Part of the new anhydrous capacity will be used in making other chemicals at the plant and part will be sold for agricultural use.

New Firm to Sell Vegetable Fat Products

Formation of a new company to sell vegetable fat specialty products has been announced by Eugene S. Wright of Wilmington, Del. The new company, called Fable Brand's, Inc., will sell to dealers, brokers, and jobbers throughout the country.

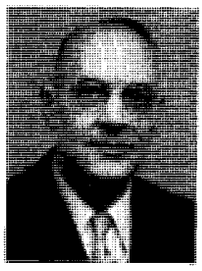
Home office will be in Wilmington and sales and distribution will be handled in St. Louis, Mo., by John T. Bode, vice president in charge of sales.

The new company has taken over the Shur-Whip Co. of Washington, D. C., which has been manufacturing and distributing whips, toppings, and frozen dessert concentrates since 1950.

People

Sherwood to Get Southern Chemist Award

Francis W. Sherwood of the agricultural experiment station at the North Carolina State College of Agriculture and Engineering has been named to receive the 1953 Southern Chemist Award, which is presented annually by the Memphis Section of the AMERICAN CHEMICAL SOCIETY for distinguished service to the profession of chemistry in the Southern states. Dr. Sherwood has been cited by the award committee for his major contributions to the basic knowledge of agriculture in the South, particularly in effecting more extensive and efficient utilization of cottonseed products by cattle and of peanuts by swine and for his introduction of new and improved biochemical test methods. He is also praised for his study of the relationship between soil fertility and the nutritive value of forage. The award is to be made at a banquet in New Orleans on Dec. 11, during the three-day regional conclave of ACS local sections in the South.



R. L. Hockley has resigned as president of Davison Chemical Corp. to become a vice president of Mathieson Chemical Corp. New president of Davison is **Marlin G. Geiger,** who has been vice chairman of the Davison board of directors since 1951. Hockley had been with Davison since 1934, having become its president in 1952. Geiger has been with Davison since 1947 when he joined the company as executive vice president.

Grant Oliver has left Prior Products Co. to become technical sales representative on the Pacific Coast for Larvacide Products, Inc.'s line of soil fumigants, industrial fumigants, and agricultural specialties.

Harvey L. Slaughter, general manager of the Durkee Famous Foods Divi-