I/EC
MARKET REPORT
OF THE MONTH

Ammonia and Nitrogen Solutions

Ammonia production sets record. Expanding uses in nitrogen fertilizers may be hurt by import competition

SYNTHETIC AMMONIA PRODUCERS

- Allied Chemical Corp.
- Monsanto Chemical Co.
- Phillips Chemical Co.
- E. I. du Pont de Nemours & Co.
- Spencer Chemical Co.
- Shell Chemical Corp.
- Dow Chemical Co.
- Commercial Solvents Corp.
- Olin Mathieson Chemical Co.
- Southern Nitrogen Co.
- California Chemical Co.
- Mississippi Chemical Corp.
- Collier Carbon & Chemical Corp.
- Sun Oil Co.
- Calumet Nitrogen Products Co.
- W. R. Grace & Co.
- Solar Nitrogen Chemicals, Inc.
- Petroleum Chemicals, Inc.
- Hercules Powder Co.
- Cooperative Farm Chemicals Assoc.

Chemicals are the indispensable tools of agriculture, says the Monsanto Chemical Co. They will become increasingly important, it adds, as an expanding population demands quality foods in abundance at a low price from dwindling farm labor. Ammonia undoubtedly was foremost in this reckoning since it has become the base material for a whole line of nitrogen fertilizers that are consumed on a large and increasing scale.

Production of anhydrous ammonia this year by some 57 operating plants—according to the best trade estimates—will approximate 4.9 million tons against 4.5 million tons in 1959. In the period 1950–60, output has zoomed 218%. That same decade has witnessed a rising percentage of plant nutrients—nitrogen, phosphate, and potash—in commercial fertilizers as well as volume gains in the chemical fertilizer itself. Consumption of the latter during the 1958–59 season for the first time ran in excess of 25 million tons, 11.7% better than 1957–58.

It is of interest to find that the tonnage of plant nutrients in fertilizers, led by nitrogen, set a new high in 1958–59 due to the increasing trend toward high-analysis goods. Total nutrients in mixtures and materials were 7.4 million tons compared with 6.5 million tons the year before. The nitrogen nutrients used in 1958–59 were 2.6 million tons; the P_2O_5, 2.6 million tons; and the K_2O, 2.2 million tons.

By now, everyone is familiar with the direct use of anhydrous ammonia in the soil. This practice is continuing, but the Business and Defense Services Administration calls attention to a sharp rise which has taken place recently in nitrogen solutions. Their gain for the 1959 fertilizer year was 60%. Some nitrogen solutions do not have to be knifed into the ground, and, unlike anhydrous ammonia, can be sprayed on the surface. These can be handled without pressure equipment. One of these popular nonpressure solutions is URAN, based by Allied Chemical on urea and ammonium nitrate. Aqua ammonia, a low-pressure product used by mixing plants, by industry, and for direct application, increased 23%.

An indication of the rapid expansion that has taken place in nitrogen solutions in recent years is graphically shown in the following table:

Year	Gross Weight, Tons	Nitrogen, Tons 100% Basis
1955	108,700	N.A.
1956	108,900	34,500
1957	245,900	75,200
1958	324,500	99,900
1959	518,000	157,000

Source: USDA and trade sources

AMMONIA FERTILIZER PRICE TREND

	Dollars per Ton	
	Fertilizer grade	Aqueous
1950	75	81
1951	80	86
1952	80	86
1953	85	91
1954	85	91
1955	85	91
1956	72	83
1957	80	83
1958	88	91
1959	88	91
1960	92	87

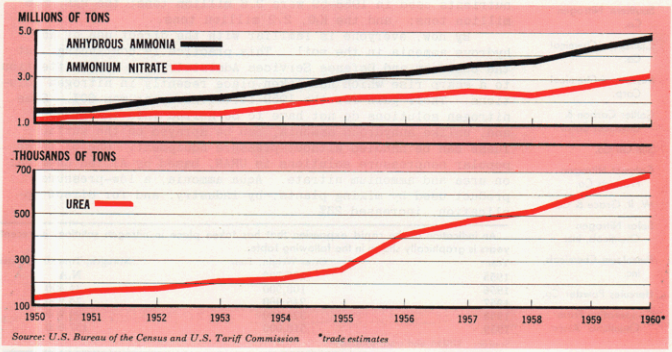
Ammonia capacity was estimated at 5.2 million tons at the start of 1960, and some further slight increases are in prospect for 1961. At the present rate of consumption, capacity probably is not excessive, although some areas of the nitrogen industry may be overbuilt. BDSA says urea capacity is growing at a faster rate than the output, and that despite this, further expansion in urea has been indicated by industry. The use of fertilizer urea increased significantly during the 5 years ending with 1959.

Import competition also bears watching. Urea imports in 1959 rose 30% to 63,000 tons, equal to 10% of domestic production. Among the supplying nations are West Germany, United Kingdom, and Norway, with Japan and Canada becoming more important. Ammonium sulfate, formerly our leading dry nitrogen material, has lost considerable ground since 1950 owing to the swing toward high analysis fertilizers and the inroads of ammonium nitrate.

Prices for anhydrous ammonia are firmer, reflecting rising costs of manufacture, handling, and distribution. During the early part of 1960 the market was $88 per ton, but on October 1 the quotation was advanced by most producers to $92 at the works. Nitrogen solutions used in mixed fertilizers were advanced from $128 per ton to $132, effective January 1, 1961. A leading type used for direct application was established at $164 as of October 1. The former price was $160.

Meanwhile Hercules Powder and others moved up the ammonia price on the West Coast from $66 to $72, effective October 1, and to $75 per ton on January 1, 1961. The West Coast has been the sick man of the ammonia market, however, and according to trade reports the higher schedules are being undersold. The lower offerings emanate from a producer with large capacity for production.

Production of AMMONIA AND MAJOR DERIVATIVES



Source: U.S. Bureau of the Census and U.S. Tariff Commission **trade estimates*