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Monroe Rasnake and Dan Kirkland

The use of inorganic fertilizers for crop production is perhaps the most successful educational program ever attempted by Land-Grant Colleges, the Tennessee Valley Authority and other agencies. Not many producers in the United States or the world will attempt to grow a crop without the use of fertilizers. In fact, some producers over fertilize and in recent years, the educational program has been aimed at teaching producers to limit fertilizer applications to what is actually needed based on soil tests and cropping conditions.

Total consumption of fertilizer nutrients in the U.S. increased gradually from 1975 until 1981. In 1982, consumption dropped sharply from the year before. Most of this drop could be attributed to the poor economic condition of farmers. Because of this, farmers began utilizing soil reserves of nutrients built up over the years. The downward trend continued in 1983 for some of the same reasons plus the government’s Payment-in-Kind (PIK) program which reduced acreages of many crops. In 1984 and 1985 fertilizer usage bounced back to near the levels of 1981. Small fluctuations in fertilizer usage will continue in the years to come. Either high fertilizer prices or low crop prices can cause reduced fertilizer purchases. With the continuing unstable farm economy, fertilizer usage is not likely to increase. Fertilizer prices have dropped some (about eight percent below 1984 levels), but the overriding factor for 1986 will probably be the low crop prices of 1985.

Forms of Fertilizer

The trend away from bagged to fluids and bulk fertilizers continues. The use of bagged fertilizers in the U.S. dropped below four million tons by 1984. That amounts to less than 12% of the total and compares with 44% of the total in 1967. Since 1975, the decrease in bagged fertilizer has been matched by increases in fluid fertilizers. Fluids now make up about 20% of the total.

1 Based on reports from the Tennessee Valley Authority and the U.K. Division of Regulatory Services.
Fluids have not caught on as much in Kentucky as in other parts of the country. At present, fluids account for about 12% of the total fertilizer use in Kentucky. This compares with bulk at 68% and bagged at 20%. Fluids are gaining in popularity while bagged materials are declining.

Nitrogen Fertilizers

Anhydrous ammonia continues as the dominant source of nitrogen in the U.S. based on pounds of nitrogen supplied. Recent concerns over safety in shipping and handling of anhydrous ammonia may affect its use as a fertilizer in the future. However, its relatively low prices (as much as 50% less than other sources of N) and effectiveness will help it to continue as the leading nitrogen source for some time.

The use of nitrogen solutions is increasing rapidly in the U.S. They are now the second leading form of nitrogen fertilizer supplying about one-fourth of the nitrogen used. Convenience in handling and application is the strong point of nitrogen solutions. In addition, they can serve as carriers for chemical pesticides so that two jobs are taken care of in one operation.

The two most frequently used solid forms of nitrogen are urea and ammonium nitrate. Ammonium nitrate use during the last ten years has declined while the use of urea has increased. Urea is now the leading source of solid nitrogen fertilizer in the U.S. accounting for about 13 percent of the nitrogen used. Ammonium nitrate now makes up only about eight percent of the total.

Nitrogen use (tons actual N) in Kentucky for the 1985 fertilizer year was almost 137,000 tons. Of this, anhydrous ammonia (30.8%) and urea (29.5%) were the leading sources. They were followed by ammonium nitrate (26.6%) and nitrogen solution (12.8%). Ammonium sulfate and nitrate of soda make up less than 1% of the total.

Nitrogen in mixed fertilizers is not included.