

# RE: Fertilizer

## The Rational Approach

By GEORGE E. OSBURN, Hercules, Inc.

PERHAPS NEVER in the history of commercial fertilizers have they enjoyed the front-page attention they have received in the past 18 months. For many years the industry was plagued with low prices and, of course, low profits. Supply was far in excess of demand. Now the situation is reversed and the cry is for more and more and more.

At the same time, the demand for energy for every other use is ever increasing. There is no doubt that we are in a "crunch" situation. Each day brings an entirely new set of conditions as regards energy availability which is reflected in finished product supply and price. I do not propose, however, to be a prophet of doom; rather I do believe that rational thinking will prevail and our priorities will be sorted out so that we can stay in business and continue to grow.

In looking at fertilizer availability, we should perhaps spend a moment in looking at the overall picture as background. The world population is increasing by about 1.4 million people per week. The present population of 3.9 billion is expected to double in the next 35 years.

We must also bear in mind that the population increase is twice as fast in the poorer nations as in the so-called rich countries. One can, therefore, project his own ideas of what the food supply problem will be and the continuing effect food production problems will have on fertilizer availability.

Now let's look at where we stand today in the United States. The fertilizer demand in 1974 exceeded supply and prices were about dou-

ble the preceding year. The use of nitrogen and potash rose nearly 10 percent while phosphate requirements were unchanged. Forty-seven million tons of fertilizer were used of which about 24 million tons were mixed goods.

At the end of the fertilizer year, 1974 inventories were 28 percent below the preceding year and nitrogen material inventories amounted to only 13 days' production. Fifteen days' supply of phosphates was on hand and 22 days' supply of potash was in producers' inventories.

We cannot, therefore, expect much relief in supply in the short-term even though some production increases are scheduled for 1975. We can briefly cite reasons for shortages which occurred and which will continue to present a problem:

- Natural gas and electric power availability.
- Railcar supply.
- Excessive world demand.
- Continuing low inventories, which means:
  - Continuing tight supply and, of course, high prices.

Let's look at the primary nutrients — nitrogen, phosphorous and potash — for the present and future.

### Nitrogen

Ammonia is the basic building block for all chemical nitrogen fertilizers. Several announcements have been made about expanded ammonia production and it is estimated that the actual increase in ammonia supply will be about four percent for 1975. Most of this will come in the latter half of the year. In manufacturing ammonia, nitrogen

from the air is combined with hydrogen from natural gas, and it requires approximately 40 thousand cubic feet of natural gas per ton of ammonia produced. Thus, the 16.5 million tons of ammonia expected to be produced in 1975 will require about three percent of the total United States use of natural gas. The ammonia industry is one of the principal users of natural gas and, unfortunately, there are no economic alternatives to gas as a feedstock. Naphtha, fuel oil and coal are alternative feedstocks but even if available, would be considerably more expensive than natural gas.

While the four percent increase in capacity is helpful, we should point out that the USDA has projected about a four percent increase in acreage planted for 1975. Assume that for most crops, other than soybeans, each additional four million acres means an additional need of one million tons of fertilizer. This amounts to an estimated 3.4 million more tons of fertilizer needed for farm crops in 1975.

Approximately 40 percent of all the nitrogen used on crops in the United States goes to corn, and that 50 percent of all crop fertilizer goes to 12 midwestern grain states. Also, we must remember that urea, ammonium nitrate, ureaforms and any other nitrogen products do not create a single additional pound of nitrogen — they only convert it and the conversion reduces the actual nitrogen by perhaps 10 percent. This same case applies to converted products of phosphoric acid.

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Before leaving the nitrogen situation, we should point out that we imported about 20 percent more nitrogen in the fertilizer year 1973 to 1974, while our exports decreased by 13 percent. In finished fertilizers, we imported 10.4 million tons while exporting 6.9 million tons. This gave us a net increase of 3.5 million tons. It is obvious that any fertilizer embargo policy would not have been in our best interest.

## Phosphate

One-fourth of the world's reserves in phosphate are held by the United States. Phosphate rock is the raw material for the production of finished phosphate fertilizers, and it requires some three tons of rock for one ton of  $P_2O_5$  in phosphoric acid. New acid production was scheduled to come on stream in the first quarter and it is predicted that there will be slightly under one million tons more acid available in fiscal 1975.

Of the three nutrients, N, P and K, phosphate may be in better demand-supply balance domestically, but the 15 percent increase in supply does not mean there will be any world surplus in the foreseeable future. Prices, therefore, will remain strong, and world demand for rock and subsequently acid will continue the current situation until near the end of the decade.

## Potash

Potash is the one nutrient where we must rely on our friend to the north, Canada. Seventy-five percent of the potash consumption in the United States in 1974 came from the Canadian mines and inventories in North America are reported to be at dangerously low levels. There is little increase forecast for 1975, the major reason being the divergent opinions of the Canadian and Provincial governments and the potash producers, on the amount of taxes to be levied and who shall control the marketing decisions. We, therefore, see continuing shortages and firm prices for all of the potash fertilizer materials. Sulfate of potash is in very short supply due to the above reasons, but also due to the current tight situation on sulphuric acid.

Prices, as one would expect, have continued to rise but we are perhaps seeing some leveling off at today's published levels. It is possible

that there will be spot increases on individual materials, but the overall market should be somewhat stable and rises greater than 10 percent overall are not anticipated.

With present crop price projections, fertilizer is still the farmers' best buy and no slackening in demand is really foreseen. The key for those who need to purchase fertilizer, for whatever end use, is management and using only what is required, and at the same time using the most efficient material. We would suggest that before embarking on any fertilization schedule or program, a soil test be made and then use only the nutrients required and in the minimum amounts to accomplish the job.

The price per ton of fertilizer material is not the key to good fertilizer management. Rather, the cost per unit of the needed plant food which will be available to the plant is, and should be, the critical cost. The manager's job is to know unit costs and to program his requirements of needed plant food in the proper unit amount to accomplish the job in the most efficient manner.

It is my opinion that materials, per se, will be the manager's choice in the future and not complete fertilizers when not all of the plant nutrients are required for the job at

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## FERTILIZER (from page 22)

hand. Nitrogen, of course, is always needed for plant growth and many nitrogen bearing materials, ranging from completely soluble to the newest slow-release nitrogen materials, offer the manager a wide range of products to accomplish his objective at the lowest cost.

We would be remiss if we did not comment on the role of fertilizers in the non-farm or non-food production areas. All of us have read on this subject and the media continue to suggest moratoria, legislation, voluntary abstinence and various other campaigns to divert United States' fertilizer from non-farm or non-food uses, and send it "over-seas."

We do not propose to argue the highly emotional case, but we do think that there are some facts that you might want to know, as they affect you and your business. For example, less than four percent of the total United States fertilizer produced and consumed is used for non-farm purposes. You should

know that this number includes airport runway de-icing, public parks, playground maintenance, highway shoulder stabilization and very importantly, erosion control. It does not just go to golf courses, not is it 15 percent of the total fertilizer consumed, as some would have us believe. Ed Wheeler, of the Fertilizer Institute, says, "One should never forget that not only do our green lawns and landscaping make our cities more beautiful and pleasant to live in, but in addition, growing lawns and plants remove harmful carbon dioxide and pollutants from the air and release oxygen back in return. The small amounts of fertilizer so employed contribute not just esthetic enhancement to our environment, they make a necessary functional addition to it as well."

We might also point out that many, many thousands of people are employed in all the non-farm fertilizer service areas. Workers in fertilizer plants who produce specialty fertilizers, employees of all contractors serving the turf and related industries would be imme-

diately affected by any ban on such fertilizer use. Their efforts contribute a considerable amount to the economy which is sorely threatened as it is. Such a ban would result in mass unemployment in still another industry.

Art Edwards, publisher of WEEDS TREES and TURF, requested in his editorial in the December, 1974, issue that: "We need action committees — using the best minds in our industry — to assemble data which will quickly show the need for maintaining the green in our field." He asked for your ideas and we repeat his request.

Finally, on this matter, we believe that Dr. Robert Schery, director of the Lawn Institute, has put it succinctly when he says in his article entitled "Non-Farm Fertilizer Use" in the January, 1975, Horticulture magazine: "The appeal to forego non-farm fertilizing is an emotional reaction, rather than a reasoned plan for correcting a complicated world problem, towards the solution of which the appeal can contribute almost nothing." □

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