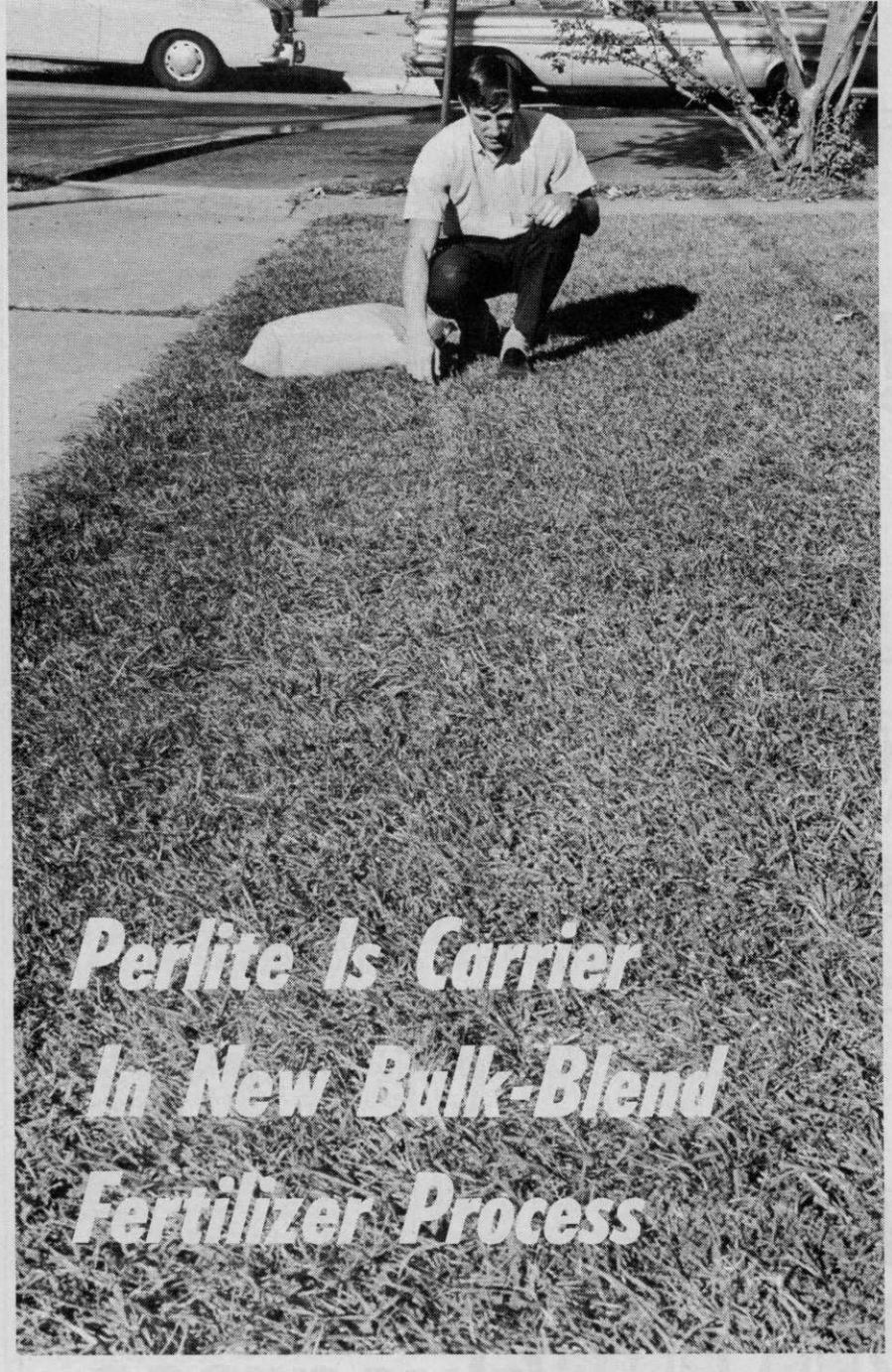


Perlite Is Carrier In New Bulk-Blend Fertilizer Process

Georgia Institute of Technology, working with the Perlite Institute, Inc., has developed an economic process for manufacturing a lightweight fertilizer containing perlite by the wet granulation process. The technique shows advantages in the production of bulk-blended lawn and garden fertilizers. A brief report follows to give you some background for evaluating the resulting products as they come on the market. For existing fertilizer manufacturers or other readers that might be contemplating the production of fertilizer, additional information is available on formulations, uniformity testing, and production data. Interested readers may circle 711 on the reply card.

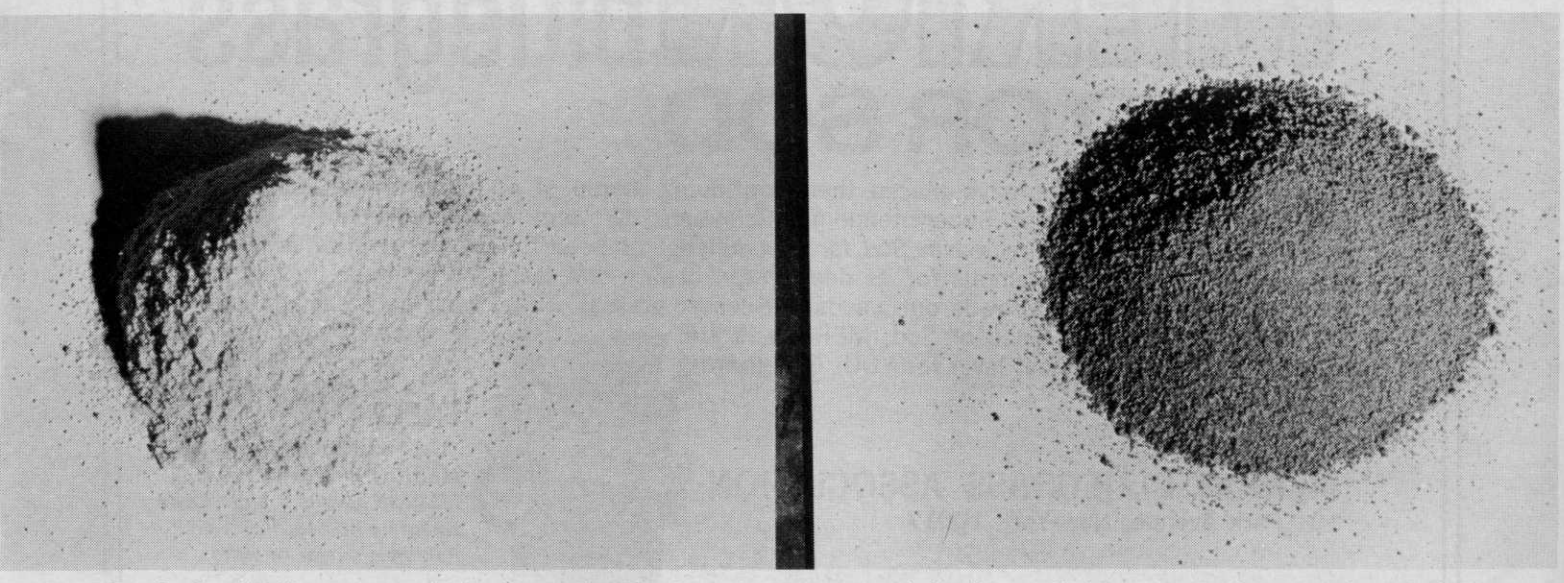
FIELD TESTS on a new perlite-containing, bulk-blended lawn and garden fertilizer developed at the Georgia Institute of Technology, under the auspices of the Perlite Institute, indicate that the addition of the expanded perlite provides low production cost, better application characteristics and performance equal to lightweight fertilizers produced by conventional wet granulation processes.

The specific advantages claimed for the new fertilizer blends include:

1. Ease of application—no caking as a result of storage, dustiness during application.

2. Lower bulk density (packed); 24-28 pcf compared to 30-40 pcf.

3. Better appearance; light and uniform in color. The light color makes it possible to see on application thereby preventing overlapping



Proof of a fertilizer process is in the results. At Georgia Tech, a lawn treated with the bulk-blended perlite-containing fertilizer equaled or bettered the performance of conventional fertilizers of the same analysis. Fertilizer bulk-blended with perlite, left, has 50% more volume for the same weight as conventional bulk-blended fertilizer.

USDA Bans DDT in Four Categories

DDT registration is now cancelled in four general categories of use described as "non-essential" and "not in the public interest."

These categories are:

1. All uses on shade trees, including elm trees for control of the elm bark beetle which transmits Dutch Elm Disease.

2. All uses on tobacco.

3. All uses in or around the home except limited areas for control of disease vectors as determined by public health officials.

4. All uses in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials.

The cancellation of federal registration took effect Dec. 25, or 30 days from the announcement by the pesticide regulation division of USDA's Agricultural Research Service.

Manufacturers, formulators and distributors were directed that "such uses are no longer considered to be in compliance with the provisions of the (Federal Insecticide, Fungicide, and Rodenticide) Act." The directive said withdrawal or relabeling is not considered necessary for products already in channels of trade.

ARS officials say the announcement was an indication that ARS planned to ban all "nonessential" uses of DDT. Exceptions, a USDA release stated, will be made only where DDT is needed "for prevention or control of human disease and other essential uses for which no alternative pest control means are available."

Action on the cancellation of nonessential uses is expected to be completed by the end of next year, the release continued.

Persons desiring to submit written data, views, or arguments regarding the proposed cancellation, USDA said, should file them with the Directors, Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250. All submissions must be made no later than 90 days after publication in the Federal Register. (That makes the deadline Feb. 25, 1970.)

or skipping. The color, however, quickly disappears into the lawn on watering, or as a result of dew or rain.

4. Can be manufactured in low-cost, bulk-blending plants with substantial manufacturing cost savings over conventional processes. This can, in turn, lead to possible freight savings due to ease of manufacture near point of sale.

5. Formulation can be quickly changed in the manufacturing process to obtain various grades of fertilizer.

Results of the Tests

After development, Georgia Tech field-tested a 20-10-5 formulation of the new fertilizer in which the nitrogen was all in a water soluble form. The tests were conducted in the Southeastern part of the United States. The 20-10-5 formulation was chosen because it was considered typical of lawn and garden requirements. The field tests revealed that the new fertilizer flows well from cyclone or roll type spreaders, providing even distribution. They also found that it does not cake in the spreader and is not prone to blow in a light breeze.

Most important, tests showed that the new fertilizer does not burn at 2 pounds of nitrogen per 1000 sq. ft. (normal application for grass is 1 to 2 pounds of nitrogen per 1000 sq. ft.), and that the grass treated was deep green in seven days—was still green after 4 weeks.

While applying the fertilizer in a cyclone-type spreader, it was noted that on occasion it tended to bridge in the spreader. This minor problem was overcome by hitting the spreader with the hand, or by bending or extending the existing scraper wire.

Storage Tests

In order to determine shelf life and other marketing factors, the bagged product from the production test run was stored in an Atlanta warehouse 12 bags high for six months. After six months, bags were taken from the bottom of the pile and dropped from waist-high two times, once on each flat side. The bags were then cut open for examination. No evidence of caking.

Bags stored in the laboratory at Georgia Tech show no caking after a year.

Manufacturing

Feasibility of commercial production was proved in a fertilizer bulk-blending plant utilizing a "one-ton" rotary mixer. This is a 56-in. long by 66-in. diameter rotary horizontal mixer rotating at 13 rpm. The unit was driven by a 10-hp motor. There were lifting flights inside the mixer. The water spray pipe was inserted horizontally into the center of the mixer and rotated so that it discharged at a 45-degree angle downward onto the bed of material. Water was supplied from an air pressure tank and was discharged into the mixer through a Spray Systems Company (Chicago) ¼-in. BSS8 Whirljet nozzle. It was found that this method worked well, achieved a satisfactory blend and resulted in no production problems.

The selection of raw materials for this new fertilizer blend is important, particularly with regard to particle size but also, of course, as to chemical makeup of the particulate matter.

Raw materials required for a 2,000-lb. batch are: 478 lbs. diammonium phosphate fines, wet process, 18-46-0; 720 lbs. white fine crystalline urea, 45%N; 164 lbs. solution grade potash, 62% K_2O; 14 lbs. 200-mesh bentonite; 524 lbs. expanded perlite; and 100 lbs. water.