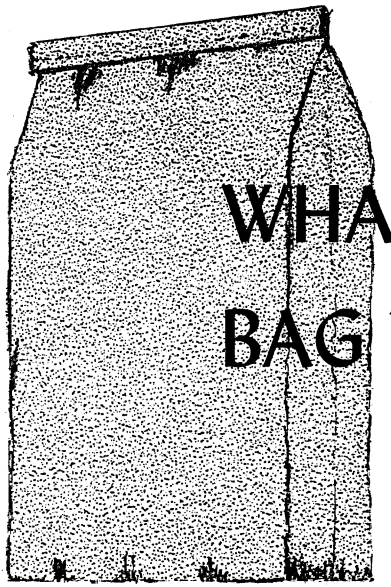
LEAFLET No. 51
NOVEMBER 1956



It's WHAT IS *in the* BAG THAT COUNTS

Buying fertilizers according to crop needs is good business

ALL 100-pound bags of fertilizers may look alike and weigh the same, but there similarity ends!

Each grade of mixed fertilizer has different amounts of plant food elements that determine value and usefulness.

In selecting and buying a fertilizer, these three considerations are important to you:

1. Amount of plant food contained.
2. Cost per pound of plant food elements.
3. Proportion of the elements.

These points have a direct bearing on returns from money spent for fertilizer.

Fertilizer grade is expressed by a series of three numbers. The first figure refers to percentage of nitrogen (N), second to percentage of phosphate (P_2O_5), and third to percentage of potash (K_2O). For example, 4-12-12 contains 4 per cent N, 12 per cent P_2O_5, and 12 per cent K_2O. These amounts add up to 28 per cent plant food, which is a third more than the 21 per cent plant food in 4-10-7.

FERTILIZER COSTS COMPARED

Fertilizers having a high percentage of plant food usually are better buys than grades of lower analyses. This is the case when grades are compared on the basis of cost per pound of plant food.

Cotton fertilization is a good

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example of how fertilizer costs may be cut by using the right grade. On most Alabama soils, cotton needs 50 to 60 pounds per acre each of N, P_2O_5, and K_2O. Using 4-10-7 as many Alabama farmers do, it is impossible to get equal amounts of phosphate and potash because the percentages are not the same.

To furnish enough potash (50 to 60 pounds) requires about 800 pounds of 4-10-7. However, this amount supplies 80 pounds of phosphate, which is 20 pounds more than needed. To use less than 800 pounds would not supply enough potash for top yields.

On the other hand, 500 pounds per acre of 4-12-12 fertilizer would provide 60 pounds each of phosphate and potash. There would be no over supply of P_2O_5.

Now, let's compare costs of the two grades, with N at 15 cents per pound, P_2O_5 at 6 cents, and K_2O at 5 cents.

800 lb., 4-10-7 + sidedressing

32 lb. N @ 15¢	$ 4.80
80 lb. P_2O_5 @ 6¢	4.80
56 lb. K_2O @ 5¢	2.80
Sidedressing:	
28 lb. N @ 15¢	4.20
Total	$16.60

500 lb., 4-12-12 + sidedressing

20 lb. N @ 15¢	$ 3.00
60 lb. P_2O_5 @ 6¢	3.60
60 lb. K_2O @ 5¢	3.00
Sidedressing:	
40 lb. N @ 15¢	6.00
Total	$15.60

In each case the amount of sidedressing is that which is needed to bring the level of N up to 60 pounds per acre.

At the foregoing prices, 500 pounds of 4-12-12 plus 40 pounds of N per acre would save you $1 per acre over the cost of 4-10-7. At many locations, 4-10-7 costs more per pound of plant food than does 4-12-12. Where this is true, you save even more by using 4-12-12.

For example, in August, 1956, a major fertilizer manufacturer quoted prices of $37.50 per ton for 4-10-7 and $43 per ton for 4-12-12. At these prices you would save $2.45 per acre by using 4-12-12.

Since fertilizer is generally bought in large quantities, let's look at the problem from another angle. Three tons of 4-12-12 contains 1,680 pounds of plant food (N, P_2O_5, and K_2O). It takes 4 tons of 4-10-7 to supply exactly the same amount, 1,680 pounds, of total plant food.

Not only do you supply the right proportion of plant nutrients and save money, but you handle fewer bags of fertilizer at planting. At the recommended rates for cotton, you handle about 1 ton less fertilizer for each 7 acres by using 4-12-12 rather than 4-10-7. That amounts to quite a saving in labor.

To determine fertilizer needs of Alabama soils, the Agricultural Experiment Station of the Alabama Polytechnic Institute has conducted field experiments and soil tests in all parts of the State. Amounts of nitrogen, phosphate, and potash recommended are based on results of these experiments and tests. Various grades of mixed fertilizers can be used to supply the needed elements.

In general, recommendations fall into the following three groups from the standpoint of kinds of fertilizer:

1. **Even P_2O_5-K_2O Fertilizer.** Soil tests have shown a need for this kind of fertilizer in 75 per cent of the soils tested. These ratios and grades are recommended:

Ratio	Minimum grade	Multiple grades
1-1-1	8-8-8	10-10-10, 13-13-13, 14-14-14
1-3-3	4-12-12	----------
0-1-1	0-14-14	0-20-20

2. **High P_2O_5-Low K_2O Fertilizer.** This kind of fertilizer is needed in 8 per cent of the cases, according to soil tests. Ratios and grades recommended are:

Ratio	Minimum grade	Multiple grades
1-4-2	4-16-8	----------
0-2-1	0-16-8	0-28-14

3. **Low P_2O_5-High K_2O Fertilizer.** Soil tests show a need for this kind of fertilizer in 17 per cent of the cases. The ratios and grades recommended are:

Ratio	Minimum grade	Multiple grades
1-2-4	4-8-16	----------
0-1-2	0-10-20	----------

In addition to the above generally recommended grades, others recommended for special purposes are:

4-12-12 (Tobacco special with most of the potash as potassium sulfate and containing not more than 2.5 per cent chlorine.)

8-8-2 (Fish pond special.)

14-0-14 (Sidedressing material where both nitrogen and potash are desired.)

6-24-24 (Approved on trial basis.)

Analyses of more than 19,000 soil samples showed a need for the even P_2O_5-K_2O type of fertilizer in 75 per cent of the cases. Yet fertilizer sales for the fiscal year 1954-55 included only 16 per cent of such fertilizer. Fertilizers with an even P_2O_5-K_2O ratio are needed on soils that are about equally balanced in these two elements for crops to be grown. Amounts can be varied according to the level in the soil and the crop needs.

Fertilizers with a high P_2O_5-low K_2O ratio are needed on soils low in phosphate and high in potash. Such fertilizers are usually needed on Alabama soils when they are first brought into cultivation. However, during years of use of these kinds of fertilizer, phosphate has been built up while potash has been depleted. Hence, a greater need for even P_2O_5-K_2O fertilizers has developed. In spite of this change in need, 82 per cent of the mixed fertilizers sold in Alabama in 1954-55 was of the high P_2O_5-low K_2O grades.

Fertilizers with a low P_2O_5-high K_2O ratio are needed on soils having high amounts of phosphate and low potash or for crops that have very high potash requirements.

The two major grades making up the 1954-55 fertilizer sales were 4-10-7 and 6-8-4. Besides not being the ratio needed in the majority of cases, both are low-analysis materials, making it necessary that considerable amounts of filler or "make weight" material be used in each ton of fertilizer. In some cases a limestone filler is used, while in others inert material of no fertilizing value is the filler. Even when limestone is used, its cost

in the fertilizer bag is at least twice that of what it would be if purchased as a separate material. Thus, it is more economical to buy as much plant food as possible in the fertilizer bag, and then buy agricultural limestone as a separate material.

The Alabama State Board of Agriculture and Industries has ruled that 6-8-4 will not be allowed for sale in Alabama after September 30, 1956. Although 4-10-7 was retained on the list of fertilizers approved for sale, soil tests indicate it should be replaced by 4-12-12 in the majority of cases where it is now used.

SOIL TESTS IMPORTANT

Every farmer should have his soil **tested** to determine the **kind of fertilizer** and the **amount of fertilizer** needed. Then buy fertilizer according to the plant food contained and not solely on the basis of price per ton. It is equally important that soils be tested to determine **lime needs,** since soil acidity must be corrected before maximum returns can be obtained from the fertilizer used.

Farmers who have their soils tested and lime and fertilize according to recommendations will receive the maximum return from their fertilizer investment.