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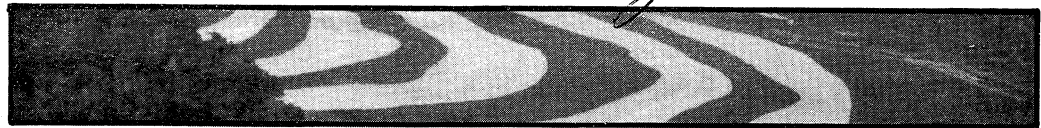
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AGRONOMY GUIDE



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Fertility**

Know Your Fertilizer Materials

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Agronomy Department and Office of the Indiana State Chemist*

If you buy fertilizer materials in Indiana, it may pay you to know more about the Indiana Commercial Fertilizer Law. This law provides that all commercial fertilizer offered for sale in Indiana shall be registered with the State Chemist and properly labeled.

The Law applies to any substance containing nitrogen (N), phosphoric acid (P₂O₅), potash (K₂O), or any recognized plant food element or compound which is used for, or claimed to have value in, the promotion of plant growth.

The label is required to carry a statement of the net weight, the brand, the grade, the guaranteed analysis, and the name and address of the registrant. When fertilizer is sold in bags or other containers, the information required on the label may be placed on the container itself or on a tag attached to the container. For bulk fertilizer, the required information must appear on the invoice or delivery ticket and be supplied to the purchaser at the time of delivery. If micronutrients are listed on the container or label, they must be guaranteed in the elemental form and in minimum amounts specified by the law.

Determining Nutrient Cost in Straight Fertilizers

When purchasing fertilizer, the two most important things on the label to consider are the net weight and the guaranteed analysis. Fertilizer prices should be compared on the basis of cost per pound of nutrients rather than cost per ton of material. The cost per pound of N, P₂O₅ or K₂O in straight fertilizer materials can be determined as follows:

$$\frac{\text{Price/ton}}{\% \text{ nutrient} \times 20} = \text{Cost/lb. of nutrient}$$

For example, if we assume that ammonium nitrate (33.5-0-0) sold for \$73.70 per ton, then the cost would be:

$$\frac{\$73.70}{33.5\% \times 20} = 11 \text{ cts./lb. of N}$$

If concentrated superphosphate (0-45-0) sold for \$81.00 per ton, then the cost would be:

$$\frac{\$81.00}{45\% \times 20} = 9 \text{ cts./lb. of P}_2\text{O}_5$$

And muriate of potash (0-0-60) selling for \$48.00 per ton would cost:

$$\frac{\$48.00}{60\% \times 20} = 4 \text{ cts./lb. of K}_2\text{O}$$

Determining Comparative Costs of Mixed Fertilizers

Once the cost per pound of N, P₂O₅ and K₂O in straight fertilizers has been determined, their relative cost in mixed fertilizer can be compared as follows:

$$(\% N \times \text{cost/lb. N}) + (\% P_2O_5 \times \text{cost/lb. P}_2\text{O}_5) + (\% K_2O \times \text{cost/lb. K}_2\text{O}) = \text{Cost}/100 \text{ lb.} \times 20 = \text{Cost/ton}$$

For example, if we assumed that a 5-20-20 analysis fertilizer sold for \$72.00 per ton, then the cost could be compared as follows:

$$(5\% N \times 11 \text{ cts./lb. N}) + (20\% P_2O_5 \times 9 \text{ cts./lb.}) + (20\% K_2O \times 4 \text{ cts./lb.}) = \$3.15/100 \text{ lb.} \times 20 = \$63.00/\text{ton}$$

Thus, by this technique the cost of various mixed fertilizers can be compared on the basis of the cost per pound of nutrient.

Determining Per-Ton Costs of Liquid Fertilizers

Most liquid fertilizer distributors in Indiana sell fertilizer of good quality, competitive in price, and on the basis of net weight. However, a few distributors sell their product by the gallon; and unless the consumer can relate analysis, weight and price, he is placed at a disadvantage. To compare the cost of liquids sold by the gallon with other fertilizers, the weight per gallon of the liquid must be known. Usually, liquid fertilizers weigh from 10 to 11 pounds per gallon.

By assuming a weight of 11 pounds per gallon and a plant food value as determined above (N = 11 cts./lb., etc.), the cost of a 10-20-10 liquid fertilizer can be estimated as follows:

$10\% N \times 11 \text{ lb./gal.} \times 11 \text{ cts./lb.}$	$=$	$\$0.12$
$20\% P_{205} \times 11 \text{ lb./gal.} \times 9 \text{ cts./lb.}$	$=$	0.20
$10\% K_{20} \times 11 \text{ lb./gal.} \times 4 \text{ cts./lb.}$	$=$	0.04
<i>Est. cost/gal.</i>		$\$0.36$

$$\frac{2000 \text{ lb./ton}}{11 \text{ lb./gal.}} = 182 \text{ gal./ton} \times \$0.36/\text{gal.} = \$65.52 \text{ cost/ton}$$

If this liquid fertilizer (10-20-10) sold for \$2.10 per gallon, then the cost per ton would be:

$$182 \text{ gal./ton} \times \$2.10/\text{gal.} = \$382.20/\text{ton}$$

This is four to five times what other liquid or dry fertilizers of similar analysis are selling for in Indiana. The claim is also made that it takes only a few gallons of this liquid fertilizer to produce

bumper crops. But note that 5 gallons per acre of 10-20-10 liquid fertilizer (a common recommendation) would cost approximately \$10.50 per acre, and supply only 5.5 pounds N, 11 pounds P₂₀₅ and 5.5 pounds K₂₀ per acre.

A Word About "Soil Conditioners"

Another example of where the consumer must be wary is in the area of soil conditioners. These so-called "miracle" products take different forms. Some are manufactured from such materials as greensand, granite dust, compost and similar substances. In the past, many deposits of impure gypsum have been offered for sale in Indiana at relatively high prices.

The salesman selling soil conditioners usually claims mysterious benefits from "conditioning" the soil and unlocking nutrients already in the soil. However, he generally has no research from unbiased sources to back up his claims, often just "testimonials". But you have no way of knowing whether the results are reliable or whether they apply to your condition. If you are aware of any soil conditioners or other miracle products being sold which are claimed to have value in the promotion of plant growth, please contact your county Extension agent or the State Chemist office.

Before you buy an untested product, be sure the man selling the product is a reputable local dealer who will guarantee what he sells. When in doubt, see your county Extension agent or local fertilizer dealer.

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