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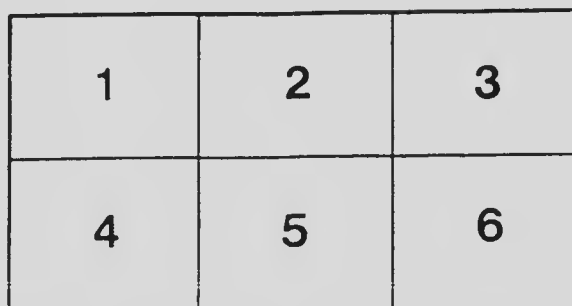
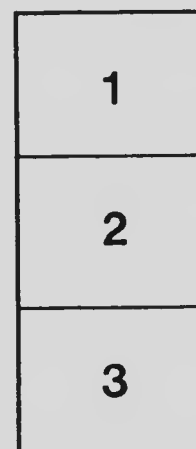
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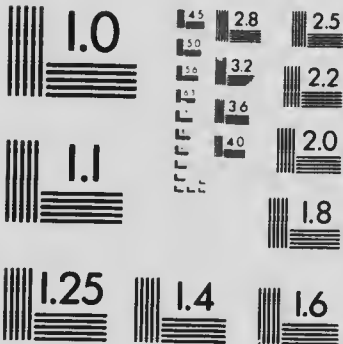
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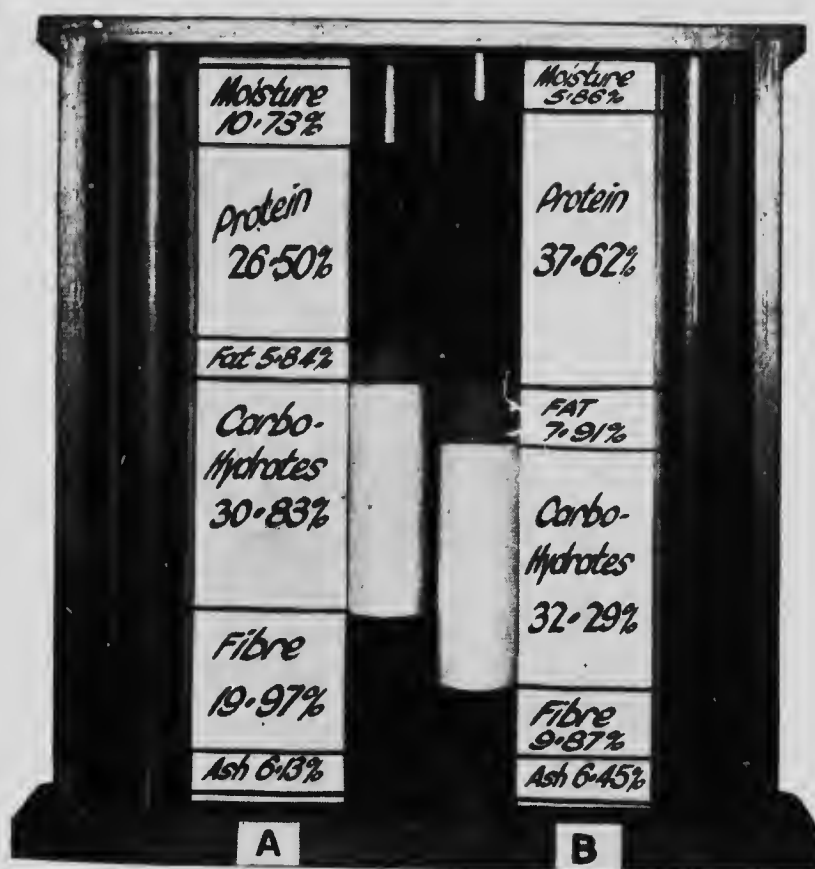
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ON PURCHASING FEEDING STUFFS

BY

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This illustration shows in graphic form the composition of the two cotton-seed meals discussed in the text.

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ON PURCHASING FEEDING STUFFS.

The farmer's profit in connection with his live stock depends not merely on getting a good price for his produce—beef, mutton, milk, etc.—but also on buying his feeding stuffs with a careful discrimination as to their relative nutritive qualities. He must not only watch market prices and when necessary obtain quotations, but he must know something of the real feeding values of the several feeds offered. It is with regard to this latter phase of the question that we propose to give some information: it must necessarily be put briefly.

It stands to reason that as far as may be practicable, home-grown fodders and grains should be produced and used, for in the feeding of them all manufacturers' and sale-men's commissions are saved, and the fertilizing elements they contain may be returned to the land in the resulting manures to increase its fertility. But to supplement these, it is necessary, chiefly to make a well balanced and highly productive ration, to purchase one or more of the various milling or manufacturing by-products upon the market. These, naturally, differ widely in composition and hence in feeding value. They differ also greatly in price, and it is well to bear in mind that the price is seldom any criterion as to feeding value; frequently we find that the cheapest feeds could not be profitably fed were they purchasable at half their marked price. On the other hand, the most expensive, by reason of their richness in the more important nutrients, may be the most economical to purchase.

The whole subject of the composition of feeding stuffs and the functions of the several nutrients—protein, fat, carbohydrates, etc.—in the animal economy, is well worthy of the careful study of the progressive farmer.

THE COMPOSITION OF FEEDING STUFFS.

The value of a feeding stuff depends primarily on its composition. All fodders and feeding stuffs are composed of the same constituents (known as nutrients) and differ among themselves in their value to the animal chiefly from the fact that the proportions of these constituents vary greatly, according to the nature of the feed. These constituents are as follows: moisture, protein, fat, carbohydrates, fibre, ash. We shall not here attempt any complete account of these nutrients, but merely emphasize one or two points in connection therewith which will enable the farmer to purchase his feeds to the best advantage.

Protein.—This constitutes the nitrogenous portion of the feed. Its chief function in the animal is the formation of body tissues and fluids—muscle, blood and milk. Of all the nutrients it is the most important and valuable, for no other can take its place in this essential flesh-forming work. Without it, or if it is in insufficient quantities, the animal cannot thrive, or grow, or produce milk.

Fat or Oil.—Of the non-nitrogenous constituents, fat has the highest nutritive value. It is used in the animal for the production of fat—the fat of the body and of the milk; for the generation of the vital heat, and as a source of energy or power to do work.

Carbohydrates.—These include starch, sugar and allied substances, which as a rule constitute the larger part of the dry matter of a feed. Their function in the animal is to produce heat and energy (for which purpose they are less valuable, weight for weight, than fat), and under certain circumstances they may become a source of body fat.

Fibre.—This is the least valuable of the nutrients. In composition and function it is similar to the carbohydrates, but it is less valuable to the animal by reason of its being less digestible. An excess of fibre, especially if it is of a woody nature, depresses the digestibility of the other nutrients and thus may reduce the value of an otherwise excellent feeding stuff.

Ash.—This is the mineral matter taken from the soil by the plant in its growth. It is composed chiefly of lime, magnesia, potash and soda combined with phosphoric and other acids. In the animal it assists in the formation of bone (largely phosphate of lime) and furnishes that small quantity of mineral matter found in all animal tissues.

IMPORTANCE OF PROTEIN AND FAT.

The farmer buys feeding stuffs chiefly to enrich his home-grown fodders and grains with protein and fat, and thus make them more effective; in other words, to make a well-balanced ration. The value of these purchased feeds will depend chiefly, therefore, on their percentages of protein and fat, and to some extent on a low fibre-content.

The Commercial Feeding Stuffs Act of Canada requires that the larger number of the milling and manufacturing products sold as feeds (bran, shorts and the meal of whole grains are excepted) bear a tag or brand guaranteeing the minimum percentages of protein and fat and the maximum percentage of fibre in the feed. These guarantees should be looked for and well studied before making a purchase, for it is not always possible from mere inspection to judge of the quality of a feed or to be sure that it is unadulterated.

LOWEST-PRICED FEED NOT ALWAYS CHEAPEST.

Let us suppose the farmer is buying cottonseed meal. He has two samples submitted to him, "A" and "B." Except that one is somewhat brighter and yellower than the other, they are much alike. "A" is quoted at \$30 per ton; the price of "B" is \$35. Are the market prices of these meals in accord with their nutritive values? Or, to put it otherwise, if "B" is worth \$35 per ton, what is "A" worth? Their composition is shown in the illustration.

Assure that the farmer is purchasing, essentially, for the **protein** and **fat** these feeds contain, and that these nutrients are approximately equal in value to him, we may proceed as follows:—

Add together the percentages of protein and fat and divide the sum into the price per ton; the result will be the price per protein-fat unit in the meal, thus:—

A.		B.	
<i>Protein</i>	26.50	<i>Protein</i>	37.62
<i>Fat</i>	5.84	<i>Fat</i>	7.91
32.34)\$30.000(.927		45.53)\$35.000(.769	
29 106		31 871	
8940		31290	
6468		27318	
2472		39720	
<i>Price per protein-fat unit in "A" 93 cents approximately.</i>			
<i>" " " "B" 77 "</i>			
<i>Difference 16 "</i>			

It is thus apparent from these simple calculations that the price asked for the same weight of **protein** and **fat** is 16 cents higher in "A" than in "B." The relative value per ton of "A" as compared with "B" is, therefore:—

<i>Total protein-fat units in "A"</i>	32.34, multiplied by the price
<i>per protein-fat unit of "B"</i>	.77 cents.

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22638

\$21.9018

We thus see that with "B" at \$35 per ton, "A" is not worth more than approximately \$25 per ton. The large percentage of fibre in "A" would tend to reduce even this figure, for, as we have pointed out, a high fibre-content has the effect of impairing the digestibility of the feed.

It has thus been demonstrated, in this case, that **the higher-priced meal is much the cheaper feed.**



