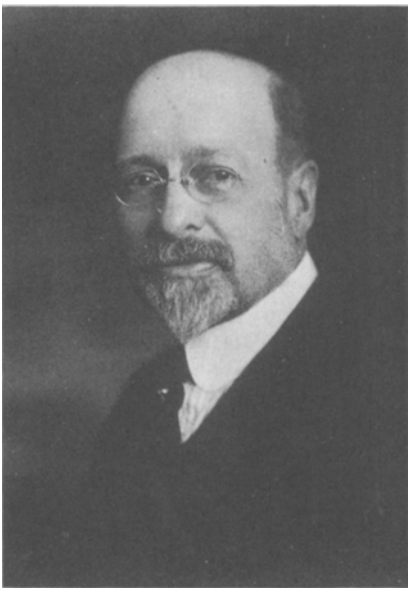
Cottonseed As the Answer to the Economic Problem of the South

By DAVID WESSON

If the Southern Farmer Utilized His Cottonseed Properly He Could Achieve Financial Independence

David Wesson, dean of the cotton oil industry, has just completed a lecture tour of the South in the interests of the Interstate Cottonseed Crushers Association. Although his speeches were addressed to young people, and to many who never even had seen an oil mill, they are equally instructive to the most seasoned veteran in the business. The South has been a slave to King Cotton for generations. Dr. Wesson shows how this great section of the country can win through to economic independence. And every man engaged in the cotton oil industry can do incalculable benefit to his business and the business of the entire Southland by preaching and reiterating, time and again, the gospel of these pages to the younger generation, in whose hands lie the destinies of tomorrow.



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IT seems rather strange for a Yankee from New Jersey to come down here in Dixie and tell you young people about one of your biggest industries. Maybe it is not as strange as it seems. All of you who have ever been in a cotton oil mill, please raise your hands. Well, I see by the number of hands that go up that not one-fourth of you have ever seen an oil mill in operation, so it looks as if I may be able to tell most of you something after all that you do not already know.

You probably do not know that the cottonseed is one of the greatest sources of wealth in the South because the Southern farmer raises mostly cotton and the value of the seed is about one-sixth of that of the entire crop. Slavery was supposed to have been abolished about 1864; but right here I want to say that the Southern farmer has been in slavery ever since. His master is King Cotton. The Southern farmer ought to be free and independent. He could raise all his own meat, fruit and vegetables. And whether the cotton crop be a failure, or a success, he would be bound to have enough to live on and be independent. If he uses the

cottonseed and its products rightly, he can achieve this end. It is to you young people, to whom the future prosperity of this country will soon be entrusted, that I wish to explain how this may be largely accomplished by the proper use of the cottonseed.

I was talking with an old gentleman in Pine Bluff a few days ago, who told me that when he was a boy he used to work off his surplus energy playing on the big pile of cottonseed at his father's gin, and how his father used to pay a man $1.50 a load for hauling the surplus seed and dumping it into the creek. It has not been so many years ago that there was a law on the statute books of Mississsippi prohibiting dumping cottonseed into the water courses because it killed fish and spoiled the water for drinking.

When I first traveled South, about 1886, cottonseed could be bought for $8.00 a ton at the mills. The farmer would not take $6.00 because it cost that to haul it. Today it is selling for $30.00 or more and during the war it was worth $75.00 and better. The reason for this great advance in the value of the seed has been largely the work of the chemists who have found means of utilizing the oil contained in this marvelous and once despised by-product.

The first oil mill in this country, so far as I know, was at Columbia, S. C., when the oil was used for burning in lamps and for paint. There were a few primitive oil mills in this country about the time of the war between the States. In 1870 less than 100,000 tons of seed were crushed. This year there will probably be a crush of between five and six million tons. This will give you a good idea of how the industry has grown.

Let us first consider the seed itself. This is only a little nut, the shell of which is very much like that of a chestnut covered with short fuzzy fibre. In our Western Country these are white, the same as the cotton; but in the East we have seed of as many colors as Joseph's coat—some white, some green, some red. Some have no fibres at all; they are called bald headed seed. Roughly speaking, the seed contains about 55 parts of meat and 45 parts of hulls. The meats, of course, are the valuable part of the seed. They contain between 32 and 38 per cent oil, according to the locality where they are grown, and are very rich in protein.

I think, perhaps, you will best understand how the seed is utilized if I tell you what is done to them in the mill. When the seed is received at the mill they first have to be cleaned to remove the sand, bolls and trash which they contain. The mill man buys seed to get out the meat, which is the valuable part. Of course, if the gin owner puts sand, trash, and other foreign material into the seed which he ships, he is sending something for which no mill owner can afford to pay, and Mr. Gin Man is going to lose not only the weight of the trash, which he ships to the mill, but he will have to be charged the freight on it—which is, of course, bad business. Cottonseed is almost as valuable as wheat and the laws of the country consider cottonseed as a food product. Cottonseed shipped in Interstate Commerce is liable to seizure by the United States Government, if it is found adulterated with foreign matter.

Clean seed next go through machines called linters which separate the fibre from the seed. This short

fibre is known as linters. It is used for upholstery, stuffing of mattresses, absorbent cotton, fabrics, Rayon, artificial silk, nitrocellulose (used in making gun cotton and smokeless powders), varnishes, lacquers, etc. The mills are now getting about 75 pounds of this lint per ton of seed. The early mills did not attempt to save this lint, and when they put in machines to save it, they only took off 20 to 25 pounds per ton.

The linted seed next goes to the hullers where the seeds are chopped up. Then they pass to the separating machinery, consisting of shaking sieves and revolving reels covered with fine wire screen, which separates the meats from the hulls. The meats then go to the press room where they are cooked in large steam jacketed kettles and afterwards formed into the cakes between press cloth and put in heavy hydraulic presses which squeeze out the oil. The oil is settled and then shipped to the refineries in tank cars.

The hulls which are separated from the seed are used as cattle feed and have about the same value as a low grade hay. They are better than oat straw, which is often used for feeding. The cottonseed cake which comes from the presses is about as hard as boards and is about 30 inches long by 13 inches wide. It next goes to the cake mill where it is ground up into a golden yellow meal and sold for cattle food and fertilizer. This meal is one of the most valuable foodstuffs we have. It contains more protein than any material within the reach of the cattle feeder. The next thing to it is linseed meal which only contains about 2/3 as much protein. The great popularity of linseed meal in times past, makes it sell at a higher price than cottonseed meal, though it is only worth 2/3 as much. This is largely due to propaganda and superstition among the feeders. As you doubtless know, protein is the most valuable and at the same time highest priced constituent of our food. Beef is a protein food and if we pay forty cents a pound for a beefsteak, we pay $2.00 a pound for the protein it contains. Cottonseed meal at the present price of about $30.00 per ton furnishes protein for four cents per pound. Cottonseed protein is almost as valuable as beef protein for promoting the growth of animals.

It can be prepared in such a way as to be useful for human food and can be used as meat substitute. This has been done in a laboratory on a fairly large scale, and specially prepared cottonseed meats have been served in the form of hash, croquets, sausage, sandwich filling, meat loaf, etc., and highly relished by Government chemists, oil mill chemists, Rotary Clubs, and last but not least Womens' Clubs, when they were served in the form of sandwiches, and were cleaned up completely.

Because cottonseed meal is such a highly concentrated food, containing as it does 43 per cent protein, it should be fed judiciously—if a little of a good thing is good, it does not necessarily follow that more of it is better. Cheese is perhaps one of our most concentrated foods; but you all know that cheese fed in too large quantities will make anybody ill. If you do not believe it, try it and see how soon you will need a doctor. Common salt is a necessary article of diet; but if any of you should take a table spoonful at once, you would think you had been poisoned, as in fact

you would be. In the same manner a good many ill effects have been reported from feeding cottonseed meal to animals because it has been fed in too large quantities. Again in times past, cottonseed meal made from damaged seed has been fed and bad results followed just the same as they are liable to follow in feeding any kind of damaged material.

The Agricultural Experiment stations of the country have done a great deal of work to find out how much cottonseed meal can be fed profitably to farm animals. It has been found that the average dairy cow can safely use 3 pounds a day without any inconvenience. When cottonseed meal and hulls are fed together 4 pounds of cottonseed meal can be fed to 17 or 18 pounds of hulls. It is wise, however, not to feed the full ration of meal at first. It should be fed gradually, increasing the quantity until it goes up to about four pounds per animal, which is enough to balance the ration properly. At the North Carolina Experiment Station, Dr. Curtis has found that by feeding plenty of green fodder along with the meal, cows and heifers can safely eat as much as from 11 to 13 pounds of cottonseed meal per day and thrive on it. At the Texas Experiment Station, College Station, Texas, hogs are regularly fed 15 per cent cottonseed meal in their ration. I never saw finer hogs anywhere. An interesting experiment was made to show the value of cottonseed meal. Four pigs were fed on a ration consisting mostly of corn and four other pigs were fed on the same ration, to which 15 per cent cottonseed meal had been added. At the end of the feeding period, the four pigs fed on corn weighed 63 pounds each, while those receiving cottonseed meal weighed 160 pounds each. This is a beautiful illustration of the necessity of balanced rations for growing animals and also the effectiveness of cottonseed meal.

I now want to tell you something of the oil. In the early days the oil went to the refineries where it was agitated with caustic soda, which caused the soap stock to drop to the bottom, leaving a light yellow oil above it. This yellow oil was shipped in large quantities to Europe, where it was eaten largely as an olive oil, or substitute therefor. Much of it came back to this country where it was sold in bottles labeled olive oil, and some of it was also marked as cooking oil and used for frying and for salads. Unfortunately little discrimination was made in the quality of the oil which was thus sold and used and cottonseed oil acquired a very bad reputation. About 1878 cottonseed oil began to go to Chicago in considerable quantities, where it found its way into lard. Enough tallow or lard stearine was added to maintain the proper hardness. This matter was investigated by Congress with the idea of imposing on these adulterated lards a tax similar to the oleomargarine tax, which has done so much to deprive this country of a wholesome food product. Investigations went into the very vitals of the packing houses, where it was found that if there was any choice it was with the product containing the wholesome vegetable oil, and the investigation came to an abrupt end with the manufacturers of the adulterated lard (which used to be sold under the name of pure lard) agreeing to label their product "compound lard," under which name it has

been sold ever since. The lard compounds made at that time did not have a first class flavor, owing to the fact that the oil used was not deoderized. The first deoderized process was brought out by Henry Eckstin of Chicago about 1893. It produced an oil very much better than any which had been used up to that time. In 1900 an oil was on the market which was odorless and tasteless and which revolutionized the use of cottonseed oil. It is well known under a name which modesty prevents me mentioning. Some of these are known as Snowdrift, Crisco, Scoco, etc. On account of this improvement, greatly increased quantities of cottonseed have been worked in the mills and the Southern farmer has received constantly increasing prices for what used to be a waste material.

In order to make the oil into a satisfactory lard substitute or shortening, hardening of some sort had to be used. In the early days of the industry, pressed beef fat was used with the oil and the melted mixture chilled by rapidly running over refrigeration rolls. Market conditions raised the price of this material to a prohibitive extent and it was about that time it was discovered that by passing hydrogen gas into heated oil in the presence of finely pounded nickel that the oil was rendered into a very hard fat. The nickel was removed by filtration and used over and over again. Its action was due to what chemists call catalysis. And the prepared nickel is called catalyser. Just how a catalyser works, we do not know; but it brings about action merely by its presence. Perhaps this can be best realized by the story of the Italian standing by his peanut stand. Nearby on the corner a young man jingles nickels in his pocket. Nothing happens until a pretty girl comes along and smiles in the direction of the young man. He in order to show off, buys a bag of peanuts. The young lady passes on without taking any part in the transaction, which she has brought about by her mere presence. Therefore, she was a catalyser. Perhaps she was catty and her name may have been Eliza.

Cottonseed oil sold under one name or another is now used in almost every household in our land, either in the form of salad oil, lard substitute, or prepared salad dressing. A chart which I am showing on the screen, shows the relative digestibility of fats and oils. You will see there is no choice between cottonseed oil, olive oil and corn oil. You notice, however, that while cottonseed oil has a digestibility of 98 per cent, chocolate is about 95 per cent digestible. So, if you young men want to keep your sweethearts happy and healthy, do not feed them chocolates, but feed them cottonseed oil.

The International Vegetable Oil Company, announces that Alfred Monsalvatge, for some years manager of the company's crude mill and refinery at Savannah, Ga., has been appointed general mechanical superintendent of the company for all its mills and refineries. Mr. Monsalvatge will continue to reside in Savannah, and have direct charge of the refinery there.

T. E. Allen, formerly secretary of the company, when its headquarters were in Atlanta, becomes manager of the Savannah mill and assistant manager of the refinery.