

# "IF THE DARNED FOOLS ONLY KNEW"

SAID ROOSEVELT



By J. F. BARKER  
Prof. of Soils, O. S. U.

A 65 bushel per acre corn crop will require per acre at least 100 pounds of nitrogen. A 5 ton crop of alfalfa represents about 225 pounds. In the course of its being prepared for plant food this nitrogen becomes nitric acid, amounting to 450 and 1013 pounds per acre, a quantity which if liberated all at once would be sufficient to destroy an acre of any growing crop. It must be neutralized as fast as formed, for the nitrogen bacteria require a nearly neutral soil if they are to thrive. To this end an abundance of free lime carbonates should be present.

When the limestone in a soil is all used up and other mineral constituents are robbed of a good part of the lime they naturally hold in combination, the soil behaves as though it were acid, even though no drop of free acid is found. Thus the leaching action of water alone can in time dissolve enough out of the soil to render it acid.

DR. H. A. MORGAN  
Director.

Dr. H. A. Morgan, Director Tennessee Experiment Station Bulletin No. 119, says: "The effect of even a moderate liming lasts for a number of years. In our experiments appreciable increases in crop yields from a single application have continued for at least eight years. At the West Tennessee Station at Jackson in a five-year general farm rotation a single application of two tons per acre of ground limestone gave, in the next eight years, large increases. The total value of increase for eight years, as compared with adjoining unlimited plots, was \$51.70.

At present prices the total value of the increase would amount to over \$75.00."

## WHAT IS A FERTILIZER?

Webster's Collegiate Dictionary defines:

**FERTILIZER**—To make fertile; to fecundate or impregnate.

**MANURE**—To enrich with a fertilizer; any matter which makes land productive; a fertilizing substance.

The Universal Dictionary defines:

**FERTILIZER**—Any material used as a manure for the land.

**MANURE**—Any fertilizing substance used for enriching the soil.

The Century Dictionary and Cyclopaedia defines:

**FERTILIZER**—One who or that which fertilizes; specifically a manure, whether organic or inorganic.

**MANURE**—Any substance added to the soil with the view of rendering it more fertile. Almost every kind of vegetable substance in one place or another is used as a manure. The principal mineral matters employed as manures are lime and other alkaline substances—chalk, sand, clay, marl, various sulphates, phosphates and nitrates. Treat with a fertilizer or fertilizing material or elements.

**NOTE**—The soil will in due time be manured by the overflowing of that river (the Nile), though they neither see or know the true cause of it.

## THE HIGHLAND RIM

"The results of field experiments on eighteen different farms, in which seven different counties were represented prove the general profitability of liming on the soils of this section."

## THE USE OF FERTILIZERS WASTED WITHOUT LIMESTONE

D. M. S. & B. Lime well nigh doubles the crop value of barnyard manure. Limestone is so soluble. It will do team work with any other crop booster in the world. Before using any kind of prepared fertilizer it is safety first to use D.M.S. & B. first.

## AUTO CLUB OF SOUTHERN CALIFORNIA LAW MAKERS

Why not demand a red button light on extreme sides of all vehicles? With rage, bottles, iron and boxes fastened on the sides of motor cars, it is impossible to tell how much clearance you have when driving in the dark, especially when blinded by the other fellow's headlights.

Yell, you success, yell!



Of course, some will kick because this will help the electricians or what not. But the fellow who has to change the red button light to the outside edge of any freight load he is carrying or be hauled into jail for some rock pile delat will quit his infractions of the law.

We need more "Go-Getters" like Judge Cox.

EDITOR.

## IF YOU ASK THE USER

What "the other fellow" has to say about results.

Fullerton, Calif.,  
January 20, 1922.  
California Lime & Fertilizer Co.,  
Los Angeles, Calif.

Gentlemen:  
I am glad to inform you as to the results secured from using your D. M. S. & B. LIME on my grove near Placentia.

I have an eight-acre grove of Valencia, Navel and St. Michael oranges. The trees are large and run from twelve years to more than twenty-five years old, while the soil is a heavy loam.

Up to 1921 I have used only manure and cover crops as fertilizing material, and the results have been as a rule very disappointing, my usual crop being around two hundred field boxes to the acre, though the 1920 crop was 1500 field boxes average for the eight acres, while the trees were very yellow and going back.

I put on 100 tons of D. M. S. & B. Lime in January, 1921, which was evenly spread and worked well into the soil by my neighbor, Mr. Dunham, who takes care of the grove. No other fertilizers have been used since putting on the D. M. S. & B. Lime, and the grove has received the usual care and cultivation.

The trees are now a rich dark green color and have put on fine new growth, and there is now at least double the usual crop on the trees.

Mr. Dunham's place adjoins mine, and he states that while the soil on both places is identical, there is now a great difference noticeable when working and irrigating the two places, the soil on my place where the D. M. S. & B. has been used being loose and mellow as an ash bank and much easier to work. I am very glad to recommend this remarkable decomposed shell material to any grower whose trees are going back and failing to produce as they should.

Yours very truly,  
(Signed)  
IVA WOODWARD.

Torrance Lime & Fertilizer Co.,  
301 Broadway Bldg., Los Angeles,  
January 23, 1922.

Gentlemen:

Mr. F. L. Jones, Seventeenth and Prospect Avenue, Santa Ana, applied seventy tons of DECOMPOSED MARINE SHELL and BONE LIME to his grove in the early spring of 1921. He has seven acres of about nine-year-old Valencia trees in a heavy loam soil.

Mr. Jones runs a dairy in connection with his grove, and has had the benefit of the manure from his dairy, and consequently has made very heavy applications on his grove. He states that for several years following the trees coming into bearing there was fine growth and very fair crops. However, for the past two or three years the trees have failed to respond to the application of manure, and his average crop has been less than three boxes per tree.

Mr. Jones plowed in a good cover crop last year when applying D. M. S. & B. Lime, and states that within a very short time he began to notice a greatly improved soil condition. The hard ground under the trees is now soft and moist, and the entire soil condition has been greatly benefited.

Originally Mr. Jones had seven shares of water stock, which was all he needed to irrigate his ranch. A short time after applying D. M. S. & B. he found that more water was needed, due to the thorough breaking up of this heavy loam soil, and states that he has had to purchase ten additional shares of stock to insure a sufficient amount of water to thoroughly irrigate the ranch.

The writer inspected this ranch last Friday, and there was an unusually fine clover cover crop. The trees were in a healthy, vigorous condition, and had on a conservative estimate of at least an average of six to eight field boxes of fruit per tree. Furthermore, it was very noticeable in comparison with adjoining groves that Mr. Jones' grove had not suffered to any appreciable extent from the two very severe winds and storms that had swept through that country during the preceding sixty days.

Very truly yours,  
CALIFORNIA LIME & FERTILIZER COMPANY.  
By Jos. R. Hargrove, Sales Manager.

## LOSS AND USE Calcium and Magnesium

The loss is by leaching and drainage. One Experiment Station made a 40-year test. All drainage water from an acre was saved and tested. The loss in drainage averaged one ton of Calcium and Magnesium in three years. Thirteen tons in forty years.

One of the uses of Calcium and Magnesium is to feed field crops. These crops pump Calcium and Magnesium up and out of the soil as follows, per acre:

The average corn crop takes 27 pounds.  
The average oat crop takes 23 pounds.  
The average wheat crop takes 19 pounds.  
The average timothy crop, 1 1/2 tons, takes 40 pounds.  
The average clover crop, 2 tons, takes 100 pounds.  
The average alfalfa crop, 4 tons, takes 240 pounds.  
Grain and grass must have Calcium and Magnesium. The soil must supply them.

D. M. S. & B.

## EXCELLENT RESULTS FROM THE USE OF D. M. S. LIME

November 10, 1921.  
California Lime & Fertilizer Co.,  
299 Wholesale Terminal Bldg.,  
Los Angeles, Calif.

Gentlemen:  
Replying to your recent inquiry, I am glad to speak a good word for DECOMPOSED MARINE SHELL and BONE LIME.

I own twenty acres of eight to nine year old trees near Garden Grove, and the soil in my grove is inclined to pack and run together after each irrigation.

I made the first application of D. M. S. Lime in the fall of 1919, and have since made two other applications, the last one about a year ago. My soil was apparently devoid of lime, and I felt that an unusually heavy application was necessary. Judging by results, this was correct, for the soil works up much better and the trees which had not shown any growth since I owned the place have taken on new life, and show not only a fine growth, but put on a good crop of fruit.

I find now that when irrigating, the soil takes up a great deal more water than formerly, it being necessary to run the water from twenty-eight to thirty hours, as against fifteen to eighteen hours before applying D. M. S. Lime.

The grove has been fertilized with both barnyard and commercial fertilizers in the past, and the D. M. S. has seemed to make this fertilizer available and put it to work, and had it not been for considerable damage to my trees caused by spraying, believe I would have had this year one of the best crops in this section.

I am very glad to recommend D. M. S. Lime, which I believe to be the very best form of lime citrus growers can use.

(Signed)  
P. B. ROY.

Garden Grove, Calif.

## DR. S. O. BARNES of Gardena Says:

In the growth of drug plants the object is to produce a drug with the highest medicinal or alcoholoidal or resinoidal contents. We have found that the soil upon which we were located, a heavy black, very rich in humus and exceedingly fertile soil, but very hard and obdurate. Our drug plants and flowers that are used in pharmaceutical preparations were not superior to the foreign imported goods, and we found that we were cut out of the eastern markets because of this fact: taking into consideration the low price of imported goods and competition, that it was impossible to meet an account of freight rates from California to eastern markets, we found it impossible to market our goods. Upon the discovery of D. M. S. & B. I at once recognized an old friend that in my boyhood days I had used. He never failed to make a crop upon the ground where this was used. New life was at once instilled into my business. I at once applied this to the ground and have succeeded in producing goods that we sell much higher in alcoholoidal and resinoidal and drug contents than imported goods that competition has ceased to exist, and California goods raised by the aid of D. M. S. & B. are so superior to the imported goods that manufacturers in the eastern markets are willing to pay from 25c to 50c per pound more for my goods. We find that this is especially true of our Calendula, officinalis. The flowers or petals contain from 25 to 35 per cent more of the resin than imported petals. It is richer in color and there is no loss or adulteration, so that it makes us at least a 50 per cent proposition ahead of imported goods. The cause of this to a large extent is the availability of the humus caused by the action in the soil of this D. M. S. Lime combination.

Pennsylvania Avenue and Wilmington Blvd., Lomita, Cal.  
Torrance Lime & Fertilizer Co.,  
Lomita, California.

Gentlemen:  
In reply to your request for an expression from me relative to my using D. M. S. & B. Lime Fertilizer on my property, I take pleasure in stating that in the latter part of May, 1920, I used about three tons of D. M. S. to less than one-half acre of ground, which was very hard adobe. The D. M. S. absolutely turned the adobe into an aerated broken up soil, on which I grew the largest and best crop of melons I ever saw or grew, and sold the crop for 30¢ per lb. at the ranch.

The vines were immense, strong, sturdy, healthy, and absolutely no root rot, which enabled me to have melons at Christmas. I also used it very successfully on alfalfa, and expect to continue its use as a fertilizer as long as it is available for me to use. With best wishes,

Very truly yours,  
(Signed)  
J. E. CHANDLER.

The "American Agriculturist" in a strong editorial said: "Director Thorne of Ohio tells his people that the whole of his state should be covered with one inch of ground Limestone. What he says about Ohio is applicable to the greater part of the middle states. Almost every acre needs not only more lime but more phosphate. Wherever you find an abundant supply of lime and phosphate in the soil, there you find the most productive farms. Let's not forget that Limestone is the mother and foundation of all soil fertilization, and that soil fertilization is the mother and foundation of civilization."

## ALVA AGEE,

Secretary New Jersey State Dept. of Agriculture,  
Alva Agee, Secretary New Jersey State Dept. of Agriculture, says:

"Comparing lump lime with finely pulverized limestone, the factors of expense and discomfort and final lack of perfect distribution of the former remain important. The stone is relatively easy to handle, being slightly granular and passing through a distributor without trouble. The fact that it is not caustic, like the hydrated, is in its favor. When everything is taken into account, one is justified in using limestone or air slaked lime (calcium carbonate) at a cost per ton three-fourths as great as that of lump lime."

## ACTUAL ANALYSIS

Los Angeles, Cal.  
December 15, 1921.

Acid Insoluble	8.24%
Water	69.55%
Calcium Oxide (CaO)	0.20%
Magnesium Oxide (MgO)	0.20%
Iron & Alumina Oxides	0.66%
Phosphoric Acid (P2O5)	0.51%
Carbon Dioxide (CO2)	39.40%
Sulfur (Free)	0.10%
Synthetic Combination of Above	
Acid Insoluble	8.24%
Water	69.55%
Iron & Alumina Oxides	0.66%
Sulfur (Free)	0.10%
Calcium Carbonate (CaCO3)	89.18%
Magnesium Carbonate (MgCO3)	0.42%
Bone Phosphate of Lime (Ca3(PO4)2)	1.11%

GEO. W. GOOCH,  
Analytical Chemist.

## ROSES RESPOND TO LIME TREATMENT

Experiment with roses shows the value of lime on acid soil. Roses not receiving treatment failed after second year.

## SUPPLYING ELIMINATIVE DEMANDS

(By W. H. Lytle, Oregon State Veterinarian.)  
The need of the dairy cow for lime in comparatively large amounts is logical, the writer shows, owing to the fact that she is an unparalleled producer of mineral nutrient for the human family. In 100 pounds of milk she gives seven to nine-tenths pounds of mineral. In order to produce this amount the drain on her system must be so supplied that one-twentieth of her weight will be constantly maintained as mineral matter. Obviously her mineral food requirements are, therefore, in proportionate ratio to her eliminative demands. If she does not receive the required mineral the cow does not produce the normal mineral percentage in her milk, just as certain soils will not give up their plant food nutrients, unless lime has been applied to them in adequate amounts.

## BENEFICIAL EFFECTS FROM THE USE OF LIME. TEN REASONS FOR ITS USE

The following is a copy of an abstract from an address given by Prof. R. O. Fippin on this subject. The reasons are:

- First—Sweetening soils by neutralizing acids.
- Second—Clover and most farm crops prefer a neutral or sweet alkaline soil.
- Third—Nitrogen-gathering soil organisms require an alkaline soil.
- Fourth—Organisms which make organic nitrogen available require an alkaline soil.
- Fifth—Lime is a plant food.
- Sixth—Lime increases the available phosphorus in the soil.
- Seventh—Lime increases the available potash in the soil.
- Eighth—Lime promotes the efficiency of commercial fertilizer.
- Ninth—Lime improves the tilth of clay soils.
- Tenth—Lime represses certain plant disease and organisms in the soil.

## LIME FOR ALABAMA SOILS

Bulletin No. 161  
By  
J. F. DUGGAR & M. J. FUNCHESS  
How Lime Acts

Soils that are deficient in available lime compounds, may be greatly benefited by the application of lime. Whatever favorable results follow the use of lime may be due to one or more of its several beneficial effects. Lime may increase the productivity of a soil by any of the following means:

- 1.—By overcoming a sour condition in acid soil.
- 2.—By making more available the mineral plant food in the soil.
- 3.—By improving the physical condition, or texture, of the soil.
- 4.—By serving as a plant food.

## ALFALFA

DR. M. A. PIERCE, Gardens, bought five tons of D. M. S. & B. and had applied just half of it on a small section of ground planted to alfalfa. He was told that it would ruin the seed and did not use the balance. He reports now that where D. M. S. & B. was applied there is a perfect stand of alfalfa, and on the rest of the planting what came up died back and will have to be replanted.

Bulletin 160, University Vermont, states: "The use of lime in fertilization dates back to antiquity. Of course, our Roman forbears did not know the mode of its action, but they appreciated its value."

## THE IDEAL SOIL VITALIZER!

The Iizer of the Day!  
WE DO NOT SELL THEORY!  
We Sell Function.

If you have never had the pleasure of viewing this wonderful lime quarry and fossil bed, you may well consider it your loss and, therefore, you cannot appreciate the fact that the lime deposit you are thinking about and the Lime Deposit we are talking about are entirely two different kinds of lime—physically and chemically—D. M. S. & B. LIME FERTILIZER is NOT a crystallized lime rock. It is neither caustic or irritant. Unlike ordinary lime rock, D. M. S. & B. does not congeal into lumps again, after once being incorporated into the soil, but continues to perform its function by further disintegration and will turn the hardest adobe known into a soft pliable, friable, mealy loam, and like the stabilizer on an aeroplane, has a contrary effect on sandy soil in its action as a binder and preventer of blowing and further erosion.

## PROPER CARE OF MEADOW LAND BRINGS RESULTS

G. L. White of Lewis Co. disked, limed and used acid phosphate when reseeding an acre of hillside meadow. There is now four times as much grass on this acre as on any other acre in his fields.—September Extension Bulletin, West Virginia.

## ACTION, NOT HESITATION, WINS

Agricultural News Bulletin, Vol. 1, No. 2.  
Don't wait to get out of debt in order to lime, for you will probably do neither, but lime and you'll do both. Organic matter is the making of a healthy, vigorous, red-blooded soil.

## WHEAT AND MEAT PRICES Fix Values and Wages

Measured by values and prices of other things, a ton of Ground Limestone is the cheapest article the farmer can buy today. Measured by cost to produce and its selling price, a ton of Ground Limestone brings less profit to the manufacturer today than almost anything else sold on the market. Measured by the good it will do and the profit it will give to the farmer, a ton of Ground Limestone is the best investment the farmer can make today.

F. H. Hall, of New York Agricultural Experiment Station, in reviewing Bulletin No. 400, says: "Ground Limestone has been thoroughly proved an efficient and economical aid to crop production by long and continued experiments in Ohio, Illinois, Pennsylvania, New Jersey, Rhode Island and many other States, and data is rapidly accumulating to show the same favorable results in this State. Already this form of lime has shown itself as effective in aiding the establishment of alfalfa on the poor hill lands of Southern New York as the more expensive forms of lime."

## CALCIUM A PLANT FOOD MYRON A. BACHTTELL, Soil Specialist.

Prof. Bachtell, Ohio State University, says:  
"The various calcium compounds usually are referred to as soil amendments rather than fertilizers. This is because it generally has been understood that Limestone and its products have been used to correct some deficiency of plant food. The reason that so little stress has been laid on calcium as a plant food is that when limestone is used in sufficient amounts to keep the soil from becoming acid, there is plenty of calcium for plant food purposes. It should always be remembered, however, that calcium is as much of a plant food as nitrogen, phosphorus or potassium, and as such it has as distinct functions to perform as any of these three."  
"The functions to be performed by calcium are:

1. To strengthen the cell walls.
2. To aid in transference of starch.
3. To develop vigorous roots and root hairs.
4. To neutralize acids inside the plant.
5. To encourage the growth of clover.

—D. M. S. & B.—



## WHEN A MAN GETS TOO OLD TO CHANGE— THEN HE DIES

Said Henry Ford in an interview with Bruce Barton:

"There is just one thing that's permanent in this world, and that's change. And when a man gets too old to change—why, then, he dies."

"We're moving now into a factory that is more than a mile long from one end to another, and we're using a factory which employed six thousand people just to make plans and drawings and models and improvements, all for the future—an experimental plant."

"Of course, plenty of businesses get along and make progress with no experimental plant, and plenty of men, too. But when I hire men I like those that have a certain part of their minds set apart just for experimental purposes, for asking questions and trying to find out whether there isn't a better way to do things. Men like that keep growing, and they help to make a business grow."

"Work is the only secret of keeping young—work and duty and faith—faith in yourself and faith that other men are trying to do the right thing, and faith that the world is run on the right principle. You can't get anywhere if you don't have that."

"That's the best answer I know about the future of business—that's all there is to happiness according to my way of thinking—just doing your duty and having faith."

—D. M. S. & B.—

## PARENT-TEACHERS ASSOCIATION OF THE STATE AND OF THE NATION

Are urgently advised to immediately take steps toward strengthening the traffic law with a particular view of protecting little children in crossing thoroughfares.

A half-baked movement is on foot to teach the children in the kindergarten and various class rooms of the public schools just how to cross a street in safety.

The primary instruction is to cross the street by looking to the left and the second half by looking to the right, to avoid being struck.

Fine, as far as it goes. But why not also instruct them how to swing their heads and necks around like an owl to avoid a bunch of bug-house drivers?

Let's go a bit further and demand of the supposedly developed mind the precaution necessary. Let's make it a serious misdemeanor for an autoist that fails to stop his car and permit the young and the old to cross the street in safety.

What say? Is humanity selfish?  
EDITOR.

## CHARLES MCINTIRE Supt. State Farms

Charles McIntire is Ohio's big farmer. Under the Ohio Board of Administration he has charge of the sixteen state farms, which have 7,598 acres of tillable land. In 1918 these farms produced products worth \$935,082. He makes these farms pay a profit. He is a business farmer. He believes in spending a dollar where it will bring more than 100 cents back. He says:  
"In many sections of Ohio the lack of prosperity among farmers is due largely to a deficiency of Limestone in the soil. No satter or better investment can be made than the making of liberal applications of Ground Limestone to soils where lime is absent."

"I wish that Ohio farmers could realize the great benefits resulting from a liberal use of ground Limestone."

"Limestone not only insures and increases clover yield, but of other crops as well. Truck and garden crops on all soils are greatly benefited by liberal use of Limestone."

"Experience convinces me that the man who promotes the use of Limestone is rendering a real service to Ohio."

"The limited way in which limestone is used is to be regretted. If railway companies knew what the use of Limestone meant in the way of increased production they could well afford to haul limestone from quarry to farm free of charge."

## EVOLUTION (Continued from Page One)

Our trail is on the Kimmeridge clay,  
And the scarp of the Purbeck flags;  
We have left our bones in the Bagshot stones,  
And deep in the Coralline crags.  
Our love is old, our lives are old,  
And death shall come again;  
Should it come today, what man may say  
We shall not live again?

God wrought our souls from the Tremadoc beds  
And furnished them wings to fly;  
He sowed our spawm in the world's dim dawn,  
And I know that it shall not die;  
Though cities have sprung above the graves  
Where the crook-boned man made war,  
And the ox-wain creaks o'er the burdened caves,  
Where the mummied mammoths are.

Then as we linger at luncheon here,  
O'er many a dainty dish,  
Let us drink anew to the time when you  
Were a Tadpole and I was a Fish.