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FRIDAY, NOVEMBER 22, 1918.

**OREGON WEATHER**

Fair tonight. Saturday, rain in west, fair in east. Gentle, easterly winds, fresh along the coast.

**LIMING SOILS**

(By C. D. Thompson)

Soils in nature consist of a combination of acids and bases. Soil acidity is due to an excess of active acids over bases in the soil.

All soils are made up of elements, and when any two or more elements combine they form either an acid or a base. Common vinegar is an acid. Lime is a base. A peculiar thing about an acid and a base is that when they combine with each other they form a neutral compound called a salt. Hydrochloric acid and Sodium Hydroxide combined form common salt. If more acid is added than there is base with which to combine, then there is some acid left over and the mixture becomes acid. If there is an excess of base then the mixture is basic.

The particles of a soil consist of a combination of acids and bases. Now when from any cause there is an excess of acids over bases the soil is acid and when there is a great excess of bases the soil is alkaline. Soil acidity then simply indicates an excess of active acids over bases in the soil and hence can be corrected or neutralized by adding a base like lime.

Why do soils become acid? Bases leach out of the soil much more rapidly than do acids. When water comes in contact with the soil it dissolves the bases much more rapidly than it does the acids. As a result a considerable quantity of the bases, mostly lime, are leached out and washed away annually. While the leaching of acids is comparatively small. Much cultivation increases this leaching. Some crops remove much more bases than they do acids. In addition to these mineral acids there may be organic ac-

**HOME INDUSTRY FACTS**



Who can say—man or woman—“Bigger payrolls in Oregon mean nothing to me?”

There is no one who does not benefit in some way from the circulation of payroll money. It buys necessities and luxuries. It adds to the joys and softens the sorrows of life—and in doing so travels through the whole community.

The way to make more of it in Oregon is to USE HOME PRODUCTS.

HOME INDUSTRY LEAGUE OF OREGON

BUY A SHIRT NOW AT THE

**One Dollar Shirt Sale**

**Kinney & Truax**

103 NORTH SIXTH

SEE WINDOW DISPLAY

ids formed where there is lack of proper drainage or where excessive green crops have been plowed under, but these are only temporary, and when caused by lack of drainage may be overcome by draining the land.

When soils become acid the supply of available lime and other bases in the soil becomes too low to meet the plant's requirements. An acid condition is simply the positive indication that the supply of available lime is getting low.

Even acid soils may still contain lime that is bound up with soil acids, but since there is an excess of soil acids, all of which try to hold onto the lime, it makes it extremely difficult for some plants to get enough lime unless more is added to the soil.

In plant growth various acids are formed that must be neutralized or the plant sap becomes so strongly acid that the growth processes are interfered with or stopped. In order to neutralize these acids, the plant must get sufficient lime from the soil. If the growth of legumes is lowered or stopped by a growth of lack of lime or any other cause, then nitrogen fixation in the nodules by bacteria is lowered or stopped. The nitrogen is a by product or waste material of the bacteria in the nodules and must be removed by the plant in order for the bacterial activity to continue and make possible the fixation of more nitrogen.

The legume plant is not able to remove this nitrogen from the nodules unless other conditions are such that it can grow normally and thus have use for this nitrogen.

Alfalfa requires a large amount of lime, and is greatly benefited by an acid soil. It requires about 100 pounds of carbonate of lime to produce a ton of alfalfa. A ton of red clover requires 75 pounds, while oats, rye, wheat and corn require only about one-fifth as much as alfalfa. Most garden crops require large amounts of lime. It is thus easy to see why some crops are much more affected by an acid soil than others. Some non legumes are affected just as much by an acid soil as the most susceptible legumes. A more liberal supply of lime is necessary for a good barley soil than for oats because the barley has a weaker feeding system and does not possess the power to reach into the soil and get its supply of lime and at the same time barley requires more lime than oats.

**Lime Requirements**

Whether or not a plant is affected by an acid soil condition depends on three factors (1) the lime content of the plant, (2) the rate of growth of the plant, and (3) the feeding power of the plant. The higher the first two are, the greater the need of lime and the more the effect of the acid condition. The third factor works in the opposite direction, that is, the stronger the feeding power the less the effect of the acidity. The combined effect of the three constitute the lime requirement. Alfalfa has a higher lime requirement than clover and hence is more sensitive to soil acidity. Most legumes are high in lime requirements.

All desirable soil bacteria are more or less affected by an acid condition of the soil. A good supply of lime insures successful inoculation and nodule development. It also makes the nitrogen, phosphorus and potassium of the soil more available. Lime improves the physical condition of both clay and sandy soils by making the clays more open and workable and the sands more compact. Plenty of lime prevents the accumulation of soluble toxic or poisonous substances in the soil. It is really the great regulator of soil fertility.

**New Tanning Preparation.** Synthetic tannin, distilled from tar products, has been invented in England for tanning light-colored leathers.

**SOLDIER LETTERS**

**Corporal Ralph W. Root Writes**  
 The following is an extract from a letter from Corporal Ralph W. Root, written to his wife, now residing in this city:

September 19—Everything is wet and muddy and it's pouring rain. It will be that way now until it starts to snow and freeze up along in December. I was hauling duck boards yesterday to put around the camp to walk on and I ran a 10-penny nail into my right hand in the ball of my thumb. Doc didn't think the hole was big enough so he took a lance and made it bigger. As it was a rusty nail he wasn't satisfied with that so he laid me out on a stretcher and took a hypodermic needle and injected about two thimble fulls of A. T. S. in me, right where my belt comes, so you see I am pretty sore and lame today. Outside of that I am fine.

The Red Cross is doing fine work over here.

You probably noticed by the papers that the yanks pulled off another stunt on the 12th of this month. Well it was sure some stunt. I wrote you in my last letter that I had been through one drive, July 17 and 21, and felt equal to another. Well we got another. There were a few of us who went in the first wave to bridge a stream we had to cross, was one of the lucky ones to go and was about the first one across as I had to put in the mud sill for the opposite side of the bridge. I sure did get wet and it was a cold stormy day. I was lucky though in finding a new pair of socks in the back of a German who was in too much of a hurry to take with him.

Sept. 24.—Am resting awhile near an old German camp after our engagement. They sure had things fixed up nice. I guess they expected to stay there a lifetime. We fooled them though, didn't we? Oh, you leave it to the allies now. We sure got them guessing. Hiked back from there the other day to where we could get transportation. From there we took trucks to where we are now. We are in billets now but sticking pretty close. Something mysterious in the air. You know, kind of a hunch that something is coming off—may be wrong, don't know.

What looks the most like a choice, tender, juicy, steak?



Why, another choice, tender, juicy steak!

OUR STEAKS ARE UNIFORM IN QUALITY  
 IN A CLASS BY THEMSELVES  
 AND AT THE HEAD OF THEIR CLASS!  
 THEY COME FROM CHOICE STOCK DESIGNED FOR THOSE WHO APPRECIATE CHOICE MEATS!  
 COME, MAKE YOUR CHOICE!

**The City Market**

403 G STREET PHONE 52

**WELCOME?**

Yes, every mother and wife of "Our Boys" was WELCOME to their piece of "The Kaiser" that was given away last Saturday at the

**Temple Meat Market**

When the glad and glorious news arrived of our victory in the most terrible war since time began, we felt so thankful toward our boys, but powerless to show them our appreciation of their grand work, we decided to dedicate to the mothers and wives of the boys the 1,300 pound steer, to show them, in a small way, our appreciation of the results obtained from the awful task they had before them, and which they so fearlessly and nobly discharged.

We wish again, to express our appreciation and thanks to the boys and to their mothers and wives, also to again reassure each and everyone of you that you were MORE than WELCOME to your little piece of "The Kaiser."

Hoping that ere long your loved ones may return to each of you, we are and remain 100 PER CENT AMERICAN.

**Knox & Topping**

Proprietors of Temple Market

**No Meat for Her.**  
 Mother gave the children an apple each. In little Marion's there was a worm hole that obviously had a tenant. "You take this one, Tommy," she said; "I see a vegetarian."—Boston Transcript.

**Rice in United States.**  
 There are five varieties of rice grown in the United States. The so-called Japanese varieties are planted almost exclusively in California, a kind known as the Waterbury being the one principally grown.

**Just to Oblige.**  
 "Why did you put up your city hall to look like an ancient castle?" "Well, the movie people pay a good bit of taxes here, and they said it would be a great help in filming medieval scenes."—Louisville Courier-Journal.

**Jantzen Knit Wear**

**At a Football Game—**

you have a hundred times more fun if you're snug and warm in an all-wool JANTZEN SWEATER! You not only feel well but you look just right, secure in the consciousness that you are wearing the best looking sweater that money can buy.

Whether it's a sweater vest, sweater or sweater coat that you are buying, look for the label and know that you are getting a Jantzen, then you're sure.

They come in all sizes and colors, from the very little ones to the very big ones and all have character, individuality, style—call it what you will; it's there and it's mighty fine to own.

And knit caps and hose—sure, just step into a Jantzen dealers the next time you're downtown and see what we mean.

**JANTZEN KNITTING MILLS**

**YOU ALWAYS NOTICE — A GENUINE JANTZEN**

**Peerless Clothing Company**