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# Farm Review and Forecast

## Using Lime On Farmlands Neutralizes Acids In Soil

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Assistant County Agent

Liming the soil is like lathering the face before shaving. The face is only being better prepared for better shaving in the lathering process.

Liming the soil only prepares it for better crop production. The best crop production requires the use of fertilizers carrying nitrogen, phosphate, and potash, and sometimes other plant foods, just as shaving requires a razor in addition to the lathering.

To use fertilizers on acid soils, and practically all of our native soils are strongly acid, is like trying to run a race with lead weights in your pockets.

An effective soil-building rotation to use without lime or legumes is to use the White Man and Indian rotation. Let the White Man have the soil 100 years to destroy it and the Indian have it 5,000 years to rebuild it with forests. The forests "limed" the soils by pumping back to the surface through its deep roots the soluble plant foods (calcium, magnesium, potassium, etc.) which limed the soil as the leaves fell to the ground and decayed.

What causes soil acidity in the first place? The principal acid in soils is not hydrochloric, nitric, or the common drug store acids. Such acids are soluble and would easily wash out of the soil, resulting in decreased acidity. But we know soil acidity increases with the prolonged movement of rainwater through the soil. This comes about because the main soil acids are the particles of clay themselves.

The Tennessee River carries calcium and magnesium, the two chief elements in lime, in solution equal to 348 pounds of lime per acre of watershed annually. Acid soils occur only in humid climates, the arid areas having neutral or alkaline (basic) soils.

The clay particles, very minute, do not leach out of the soil, but the important plant foods that are fastened to them do leach out. This tiny clay particle attracts calcium, magnesium, potassium and other fertilizer elements much the same as a magnet attracts a piece of

steel. And when all the clay particles in a soil are "saturated" with calcium, magnesium and potassium the soil has no acidity, and is alkaline or "sweet." When these materials are leached out, however, the hydrogen (H) that comes from the soil waters (H2O) is attracted to the small clay particle where the "food elements" had been removed by leaching, with the result that the soil becomes acidic.

There are other acids too, like organic acids, produced by decomposing vegetable matter, but it is the clay acid that gives us greatest concern. Since the clays in soils are the principal acids, a heavy soil with lots of clay would have more acidity to be destroyed (neutralized) by liming than a sandy soil with only a small amount of clay in it.

The strength of soil acidity is stated somewhat like the sizes or gauges of wire. In wires, the smaller the gauge number the larger the wire, and so with the pH scale which expresses the acidity of the soil. A pH of 4.5 is about an extreme acidity for any soil, a pH of 7.0 is neutral, neither acid nor basic, and a pH above 7.0 is alkaline or sweet and contains free lime. In this area, the optimum pH for legumes and grasses is 6.5, but we sometimes should lime as high as 6.7 or 6.8 for crops like alfalfa where the sod will be maintained for a number of years. Below is a list of crops and the acidity that they tolerate:

Highly sensitive lime to pH 6.0-6.7 — Alfalfa, sweet clover, beets, box wood.

Tolerant to slight acidity 5.5-6.0 — Asparagus, barley, brussel sprouts, cabbage, cantaloupe, cauliflower, celery, crimson clover, cucumber, hop clover, lettuce, okra, onions, parsnip, peppers, pumpkin, radish, spinach, squash, white (Ladino) Clover.

Tolerant to moderate acidity 5.0-5.5 — Alsike clover, bermuda grass, carrot, corn, eggplant, garden peas, kale, kudzu, lespedeza, lima beans, mustard, oats, strawberries, sweet potato, tomatoes, turnips, vetch, wheat.

Tolerant to high acidity below 5.0 — Cowpeas, potatoes, red top, rye, snap beans, soy beans, tobacco, watermelons.

Notice that the lists above show what acidity the plants will tolerate, not the acidity that they thrive best upon. Generally speaking, for a most fertile mineral soil, we should like to lime to near 6.5 as possible, as in this range more phosphate is available, and our legumes do their best job of capturing the free nitrogen in the air and storing it in the nodules on their roots. Organic matter accumulates at this pH, whereas it does not at the more acid conditions. Likewise phosphates are lowly available

## Grazing Alfalfas Hold Promise for Old Ranges

Today, we are interested in returning alfalfa to its first use — grazing. For the past hundred years, alfalfa has been synonymous with hay—in fact, alfalfa as a hay crop has had much to do with the rapid settling of the West.

But something has happened to these ranges. There is scarcely a western State that supports as many units of livestock per acre as it did 50 years ago, this in spite of irrigation, fertilization, new varieties, etc. Some of the reasons are: (1) replacement of original cover by other plants of little or no forage value, (2) replacement of perennials by annuals, (3) erosion and (4) reduction of organic matter.

Commercial nitrogen, fall applied, often means the difference between success and failure in grass seeding on range land. It can increase the yield of our native grasses amazingly. A fair stand of grazing alfalfas could supply this needed nitrogen.

Professor E. R. Jackman, Oregon State College, suggests that grazing alfalfas may be the key to the problem of maintaining grass stands, keeping out unwanted species, stopping erosion and restoring humus. The Oregon State College is now conducting trials to determine the adaptation of alfalfa in solving the problem.

Nomad and Rhizoma are the only strictly grazing types of alfalfa being used of which seed is available. Sevelra and Ladak are included because they have a small percentage of grazing types. Ladak has up to 15 percent in some lots of seed. Ranger is in the trials simply because it is now the standard variety.

From the 75 seedlings in this test, it is hoped to learn (1) limitations of each variety when grazed, (2) type of grazing most successful, (3) ability of the



Oregon State College  
This field of Nomad alfalfa-crested wheatgrass in Oregon has been grazed heavily ever since seeding, but was allowed to recover before this photo was taken. Note sage-brush juniper range in background. Annual rainfall is 10 to 11 inches.

various varieties to persist under grazing, (4) difference between hay varieties and grazing varieties, and (5) effect of the various varieties upon the companion grasses and upon encroachment of the unwanted species.

These trial plantings are on low yielding land — land mostly worth less than \$10.00 an acre, so the yield is low in any case. Average rainfall for the 75 plantings is 12 inches.

No definite conclusions have been reached but the tests have already stimulated interest in ranchers' minds. Some of those having trials are now seeding larger acreages on their own. Others may wish to explore this field. Typical grazing alfalfas certainly are worth trying.

## State College Answers Timely Farm Questions

**QUESTION: Where can I get training for Dairy Herd Improvement Association testing work?**

**ANSWER:** State College will conduct a course to train prospective testers August 29 to September 10 at Raleigh. Your county agent can give you details about the job opportunities open to people with such training.

**QUESTION: Ladybird beetles are showing up in large numbers in my tobacco fields. What should I do about them?**

**ANSWER:** Offer thanks. These are beneficial insects in both the adult and larval stages, since they feed on aphids.

**QUESTION: After treating with a 'stick-can' applicator for budworms, my tobacco showed some damage. How can I avoid this in the future?**

**ANSWER:** Be extremely careful to follow directions for using insecticides. State College recommends six to 10 pounds per acre of either 10 per cent DDT dust or 10 per cent TDE dust. Many cases of injury have been reported; most occurred where dusts were applied too heavily. Generally, insecticides have given good control of budworms this year.

## Tulip Trees Survived Late Freeze

The freeze of March 27-28 showed the ignorance of mere humans when it comes to the plant world, according to W. A. Steppen, extension beekeeper at State College.

Tulip trees, also known as yellow poplars, that were ready to bloom the end of March were in a very critical condition and the freeze killed all the leaves and every visible sign of bloom.

"It looked as if the bloom was finished and that the bees, which depend on the tulip trees for a large percentage of nectar during the early honey flow, were to be deprived of that source," Stephen said. "However, the trees are making good."

The trees are in full leaf and, while not as full of bloom as indicated before the freeze, are showing many blossoms and it appears that the blooming period will be more prolonged.

"Since there are never enough bees to take advantage of the largess of nectar supplied by the tulip poplars it might appear that nature was compensating the bees for their long wait by extending the length of the honey flow."

Stephen said the freeze has caused us to know more about the tulip trees and other plants too. "It renews our respect for the interrelation of bees and trees."

## 'Grapevine' Helps Farm Agent

Frank Faison, extension farm agent in Sampson County, has a "grapevine college" that helps him get his educational job done.

If Faison can convince one good farmer, he's pretty sure of convincing several. Webster Smith, Turkey, Route 1, is among Faison's best "instructors".

The farmer came by Faison's office a few months ago, wanting a rush job on soil testing. Faison explained that it wasn't a one-day job and supplied Smith with the soil sampling information and con-

ainers.

Smith was so pleased with results of the subsequent test he got, and used, from State Soil Laboratory, he got the word among his neighbors. Several have been by Faison's office inquiring about soil testing, relating that "Webster Smith."

Blueberries are grown commercially on 10,000 acres.

About 350 plant disease-tentative damage to farm

Haywood County  
**CHECKERBOARD NEWS**  
By Joe Cline and Dick Bradley  
**CLINE-BRADLEY COMPANY**

## Grass Fattening More Profitable

Whenever good pasture is available, it is very profitable to put most weight on cattle with roughages. Grass is usually the lowest cost roughage; but grasses, hays and silage should be properly supplemented to get maximum utilization in the rumen.

Thousands of cattlemen have found a small amount of grain fed with one pound of Purina Range Checkers daily per head along with lush pasture will produce heavier gains at lower cost than will pasture alone. As the season progresses and pasture becomes drier, it is a good idea to increase the amount of grain and Checkers to keep cattle gaining and finishing.

**Tests Prove It!**

In a recent feeding-on-grass demonstration, steers fed Range Checkers returned a labor profit of \$25.35 each. The grass-fed steers returned only \$7.67 per steer. This means that pasture was sold for \$12.50 more per acre by using Range Checkers. Ask for suggestions about grass feeding.

**Warm Weather Hen Management Tips**

Keep hens comfortable during warm weather to avoid production slumps. Everything possible should be done to encourage birds to eat and drink. We suggest:

1. Check waterers to be sure there is sufficient cool, clean water at all times.
2. If birds ease off eating mash, begin top feeding Checkers once or twice a day to stimulate appetite.
3. Change from mash to Checkers-Ett form of laying ration. Birds like it better—so eat more in hot weather.
4. Burn lights in the cool hours

## before dawn to encourage feed consumption.

5. Open laying house to as cool as possible. Insulation pays big dividends in birds cooler in summer, in winter.

6. Avoid crowding through brooding birds and poor condition. Usually eggs are low at this time of yearing it a good time to cull.

7. Check birds frequently for lice and mites. Treat if found with Purina Lice Powder, the roost with Purina Flea and Lice Powder.

8. Laying hens should be in the laying house and not to run.

9. Waste grain should be pullets—not laying hens.

**Health Hint**

We now have products of Purina Research for these turkey diseases: Blue Comb and Hog Cholera.

**Hogs Need Salt**

Hogs without salt gain half as fast as those getting salt along with grain. The display in recent tests showed that a few pennies of salt saved 287 pounds worth \$6.37.

Purina's Dr. Hobart says, "We've found it more able to mix the right level in the supplement and in the mixture fed free-choice." Watch 'Em Die!

That's right, come in and die right before your eyes. The display is to show your wonderful new dry killer throw on the barn floor flies—then knock 'em out in just a few seconds. See this new easy, low-cost to kill flies.

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"STA-FRESH" Sodium Bisulfite keeps silage green, sweet, and high in food value. Last year hundreds of farmers used bisulfite-treated silage with amazing success. "Best silage I ever made," said one. "We haven't found anyone who doesn't like it," said a county agent. "STA-FRESH" is low-cost, easy-to-use. Cows prefer silage made with it. (See them helping themselves in photo at right.) We carry General Chemical's "STA-FRESH" in 80 lb. bags (treats 10 tons of silage). See us today.



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Call 6247 or Visit PLEMMONS CONCRETE PRODUCTS CO. In Canton for Additional Information

## Nagging Backache Sleepless Nights

Nagging backache, headache, or muscular aches and pains may come on with over-exertion, emotional upsets or day to day stress and strain. And folk who eat and drink unwisely sometimes suffer mild bladder irritation...with that restless, uncomfortable feeling.

If you are miserable and worn out because of these discomforts, Doan's Pills often help by their pain relieving action, by their soothing effect to ease bladder irritation, and by their mild diuretic action through the kidneys—tending to increase the output of the 15 miles of kidney tubes.

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briskly with grain of wood using clean, soft cloth. Wipe frequently and compare gloss of damaged area with original finish.

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## SATURDAY, JULY 16

10:00 A.M. Regardless of Weather

This farm contains 260 acres, new brick home with all city conveniences, one tenant house, two silos and barn room sufficient to care for 100 head of cattle. Also two tobacco barns and other outbuildings. 1.57 acre tobacco allotment. Subdivided into small tracts, so you can buy as much or as little as you like.

This farm has plenty of water, is fenced and cross-fenced and is well balanced in every way. Suitable for dairy or beef cattle and truck farming. 75 head of cattle, some registered Shorthorn and Herefords, cows, calves, bred heifers and grade steers weighing 700 to 800 lbs. Farm Equipment: Used Ford Tractor, Dearborn Field Harvester, Dearborn Corn Picker, Paper Ensilage Cutter and other Farm Equipment in A-1 condition.

Lunch to be served by South Clyde Community Development Club

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For Further Information See Bryan D. Medford, 10