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EXTENSION SERVICE
Crops
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Surface Limed Soil - Six Years Later



Taking Soil Samples on a Surface Limed Field. Pictured from the left is Extension agent Mark Mellbye, farmers Kim and Kerwin Koos, and Cenex Full Circle Fieldman Demetri Balint. The group evaluated lime movement over a six-year period on surface limed soils.

Wheat Growers Meet Sept. 24

Two production meetings for south valley wheat growers are planned for September 24. The first is at the Festival Hall in Junction City, 7:30 a.m. The second is at the Extension Office in Albany at 7:00 p.m. The same program is offered at each location.

These educational meetings are sponsored by OSU Extension in Linn, Benton and Lane counties, and the South Valley Wheat League. The program features weed control, take-all management, new variety results and protein testing.

The focus of this fall's program will be alternative weed control programs. OSU agronomist Bill Brewster, working under Arnold Appleby's program, has a wealth of information to share with us. Control of bromes, Hoelon resistant ryegrass and wild oats, speedwell and bedstraw will be featured.

The South Valley Wheat League will review the protein testing program. This is a marketing opportunity for growers. Protein testing is also a way to check your nitrogen fertility program. Excess grain protein usually indicates you put on more N than you needed for maximum yields.

South Valley Wheat Meetings September 24, 1992

Alternative Weed Control Programs
Bill Brewster, Oregon State University

Update on Take-All Management
Neil Christensen
John Hart

Performance of Gene and Other New Wheat Varieties on South Valley Soils
Russ Karow

Economic Returns of Mixed vs. Single Varieties
Mark Mellbye

Protein Testing Program
South Valley Wheat League



Bill Brewster -- OSU Crop Scientist will discuss his weed control research September 24 at the South Valley Wheat meetings.

Opinions vary on surface liming of established grass seed fields. Some farmers and agricultural scientists question the practice. But others believe it's beneficial on acid soils. Farmer testimonials have been positive, but field trials have been inconclusive.

To help shed a little more light on this management option, I've presented some soil test data here on a field that was surfaced limed in 1986. The soil is a Dayton siltly clay loam. Samples were taken one and six years after application of about one and one-half ton of lime.

This project was conducted in cooperation with Cenex Full Circle. We wanted to find out how deep the lime reached, and how much it affected soil pH and calcium in the root zone. We also wanted to see how long it lasted.

The results are presented in Table 1. As you look at these numbers, recall that we'd like to see the soil pH above 5.0 and the soil test calcium at least 5.0 meg/100g. Ideally, we'd like to keep the soil pH at 5.5 or higher.

Here's some observations I've made from this investigation.

How deep did it leach? Most of the lime could be accounted for in the first half inch of soil. There was some movement into the 1/2 to 1 inch zone, but none below 1 inch. These results remind us that lime is not mobile in the soil, and illustrate that surface liming will not correct a severe acidity problem in the plow layer.

Lime applied to the surface can move deeper on some soils. Earthworms, for example, are reported to help incorporate lime on friable well-drained soil. Some lime gets deeper on clay soils by falling down cracks.

How much did it affect pH and Ca? Lime application dramatically increased both the pH and Ca level in the surface layer of the soil, especially the first 1/4 inch. Root growth in this surface layer looked very good. One year after application, the soil pH was raised to above 6 and Ca to 8 or greater in the surface half inch.

How long did it last? This third and final observation is, I believe, an important one. To appreciate it, though, recall that the rate of acidification in Western Oregon grass seed fields is equivalent to over 500 pounds of lime per acre each year. Leaching, nitrification, and to some degree removal of basic cations in straw all contribute to the process.

After six years of marinating in this acid bath, the pH and Ca levels in the surface inch of our soil in Table 1 declined quite a bit. But they were still both above five. Without surface liming, the pH and Ca in the surface layer would have dropped into the fours similar to the 1 to 2 inch depth. Thus, surface liming on this field helped maintain a favorable chemical environment in the upper root zone over a six year period.

This brings us to some closing comments. Acidification lowers the pH and Ca over time in established seed fields, especially in the surface 2 inches. We've shown that applying lime to the surface can help slow this process down, but mostly in the surface 1/2 inch. Still, this may be beneficial on some stands.

Neutralizing acidity in the surface layer of already strongly acid soil could promote better root growth and

possibly better P and K fertilizer uptake from the soil surface. The activity of soil residual herbicides like Sencor could also be improved by maintaining a higher pH.

But surface liming will not help on ground that has slipped into the "critical zone" of excess soil acidity. Liming should always be looked at as a preventative program, not a rescue attempt. Severe soil acidity should be corrected by a conventional liming program; that is, working it into the soil.

Table 1. Effect of Surface Liming on Soil pH and Calcium on an Established Tall Fescue Seed Field. Dayton siltly clay loam. Lime applied in the fall of 1986.

Soil Depth (inch)	pH		Ca (meg/100g)	
	1987	1992	1987	1992
0-1/4	7.0	5.3	19.0	5.3
1/4-1/2	6.3	5.2	8.0	5.0
1/2-1	5.5	5.1	5.7	4.5
1-2	5.4	4.7	4.9	4.0
2-6	5.5	4.8	5.2	4.5

Private Applicator Exams Scheduled

We've scheduled two private applicator exams for Linn and Benton counties. One is September 29, LaSells Stewart Center, Corvallis, 7 - 9 p.m. The second is October 27, Linn County Extension Office, Albany, review at 1 p.m., exam at 2:30 p.m.

Please contact the Oregon Department of Agriculture (ODA) at 378-3776 to reserve a spot at either of these sessions. There is no charge for the exam. Please contact the Extension Office for study materials.

Exams are also given every Thursday at the ODA in Salem.

Watch Carbon Planting On Fallowed Ground

Last fall some carbon band seeded fields germinated surprisingly fast on summer fallowed ground. While the surface appeared too dry to put on diuron and too dusty to spray remaining weeds, there was enough moisture to sprout the crop. Delaying the herbicide treatments in these cases was a problem.

Again this summer it's been hot and dry, but there's more moisture than you'd guess on fallowed fields. If you charcoal seed, make sure you get your herbicide on before the crop sprouts.



Summer Ag Institute (SAI) - For the third time in as many years, Dennis Glaser spoke at the SAI on grass seed production. Here he's shown reviewing pesticide safety with teachers who attended the course. Our thanks to Dennis and his family for their contribution to this program.

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