Sulphur as a Fertilizer

Its Importance as a Plant Food is Recognized

Until recent years, sulphur, although considered one of the essential plant-food constituents, has been given a relatively secondary place. Instead of being looked upon as an element of minor importance it is now recognized as an element of the greatest importance.

Experiments to determine the value of sulphur as a plant food, when added to the soil, either as elemental sulphur or in the form of a compound, have been carried out to a considerable extent within recent years. A number of United States experimental stations, such as those of Wisconsin, New Jersey, Ohio, Kentucky, Iowa, Oregon, and California, have made some remarkable discoveries as to the beneficial effects of sulphur when added to the soil as elemental sulphur or as sulphuric acid. Certain European experiment stations have also added to the knowledge of the value of sulphur as a plant-food. During the last three years the American Smelting and Refining Co., on its Utah experimental farm, made a long series of experiments on the effects of sulphur dioxide, elemental sulphur and sulphric acid on soils and on plant-growth. The experiments were carried out under normal field conditions and the following table shows some of the results obtained:—

cent by the use of sulphur compound.

Sulphur not only renders available approximately 20 per cent more potash in the soil, but the water solubility of the alkali is reduced about 20 per cent in soils thus treated.

The fact that alkali soils somewhat above the limit for general agricultural purposes may be brought under cultivation by this treatment means that vast areas of now useless land may be profitably farmed. An extensive use of sulphur for fertilizer purposes would provide a market for the large amount of sulphur thrown away by smelters as a useless product as there is no market for it.—Condensed from an article on "American Smelting and Refining Co's Tests With Sulphur and Sulphuric Acid on Soils," in *Mining and Scientific Press, June 16, 1917, by W. J. D.*

INCREASE IN CROP YIELDS FROM TREATMENT WITH SULPHUR AND SULPHURIC ACID COMPARED WITH UNTREATED SOILS

Crop.	Planted	Harvested	Gain	
			Sulphur treatment	Sulphuric acid treatment
			%	%
Alfalfa	April 20	Aug. 7	36.8	8.5
Barley	" 20	" 7	52.6	8.6
Beets (sugar)	" 20	Sept. 28	3.7	2.1
Corn	May 17	" 16	13.1	20.3
Kaffir corn	April 20	" 30	43.9	58.9
Millet	" 20	Aug. 12	41.4	66.6
Milo maize	" 20	Sept. 30	182.6	172.6
Oats	" 20	Aug. 11	57.3	72.9
Peas (Canadian field)	" 20	July 26	383.3	95.1
Potatoes	May 17	Oct. 4	63.0	2.2
Squash (Utah giant)	" 17	Sept. 22	152.7	59.5
Squash (Hubbard)	" 17	" 22	187.9	42.4
Sudan grass	April 20	" 30	23.9	18.1
Turnips	" 20	July 26	10.4	50.4
Wheat	" 20	Aug. 7	127.8	80.6

The sulphur was spread over the surface at the rate of 400 lbs. per acre and was then harrowed into the soil. The sulphric acid, 46° Baumé, was placed on the soil at the rate of 2,172 lbs. per acre, the acid having a sulphur equivalent of 400 lbs. per acre.

Work done in Oregon by the United States Experiment station has indicated that yields of alfalfa may be increased up to 500 per

Women Can Help

The Harvest Field Offers Many Opportunities for Them to Aid

Women should help harvest the bush and small tree fruit crops this year. A mobilization of available women for this work would be of great assistance. The women of Europe are now working regularly in the fields. They have planted and harvested crops ever since the war started. Are the women of Canada willing to do as much? If we wait until the fields are yellow we will be too late. The various women's organizations could do much if they would organize immediately.—*F.C.N.*.

Co-operation and its Results

Getting Together of Material Advantage to Producer and Consumer

Harris Weinstock, state market director of California, in his annual report for 1916, gives the following instance of the advantages of co-operation in marketing by the California peach growers:

"Last January while East, as the result of an investigation, I found that the average price for dried California peaches in New York at retail was about 17 cents per pound. The California grower at that time was getting about 2½ cents per pound. It was said to cost him between 4 cents and 5 cents a pound to produce them. That meant that out of every dollar paid by the Eastern consumer for California dried peaches, the California peach grower was getting 14 cents, making a cost of 86 cents for distribution, showing clearly a great waste in the cost of such distribution and making it further plain that there was ample room for reducing the price to the consumer and raising the price to the producer. Meanwhile, the peach growers of California have organized, with the result that this year they are quoting a price between 5½ cents and 8 cents per pound, which to them is a remunerative price, whereas the price to the consumer has been lowered about 16 per cent as compared with a year ago. This change has been brought about to the advantage of both, by the growers collectively being in a position to minimize speculation and to have a voice in stabilizing prices."

Gifford Pinchot, one of the foremost conservationists of the United States, says of that country: "The clear duty of the nation is to guarantee the farmers a fair price for their crops when grown, and a reasonable supply of labour at harvest. The clear luty of the farmer is to raise food enough to win this war for democracy against Kaiserism." This applies with equal force in Canada.

Fires in Grand Stands

Dangerous Conditions Caused by Careless Smokers

Throughout Canada the autumn fairs will soon be held. The attractions before the grand stand are a prominent feature, and the stand is usually crowded with people. The stands are almost invariably of wood construction, and, as paper wrappers from candy, luncheons, etc., are frequently thrown under the tiers of seats on the floor, great care must be taken that the danger from fire is thoroughly provided against. The careless smoker who throws unextinguished matches, cigarettes or cigar stumps on the floor may easily start a fire resulting in panic and loss of life. Smoking in grand stands should be prohibited.

Climate and Fertility

Canada's Winters Conserve the Fertilizers in the Soil

The influence of climate on fertility is frequently overlooked, but it has a more or less direct bearing on the fertilizer question in Canada. It is realized by few that climatic conditions — rainfall, temperatures, etc. — exert a profound influence on the nature and composition of soils, both in their origin and in the power to conserve their fertility. These influences may tend to the accumulation or the dissipation of those elements of soil constituents which make for fertility. In this regard, save our coastal lands with excessive rainfall, which may keep the lighter soils poor in available plant food, our country is singularly blessed. We cannot now elaborate this question, but one instance may be cited that may serve as an illustration—one which undoubtedly influences in a beneficial way the fertility of our soils. The rigorous winter that prevails over the greater part of Canada locks up for several months—practically from harvest to seeding time—the soil's fertility. The plant food that has been converted into available forms during the preceding summer and autumn, and which is left over after the season's growth, is conserved for the crop of the succeeding year. The frost holds tight within its grasp plant food of untold values—especially the more valuable nitrates, so necessary for stimulating the growth of the young crop. In regions enjoying a more open winter, this soluble plant food would be lost by leaching. With all their drawbacks, our severe winters, with their almost continuous low temperatures, must be regarded, in their rôle as conservers of fertility, as an agricultural asset of no small value, one which must profoundly affect in a beneficial way our dependence upon purchased fertilizers for satisfactory yields.—*Dr. F. T. Shutt, at Eighth Annual Meeting of Commission of Conservation.*

SWEDEN'S WATER-POWER

One of Canada's chief competitors in industries requiring large amounts of power will be Sweden. That country is estimated to have available water-power equal to 6,000,000 horsepower, of which approximately 15 per cent is in use. In 1915, timber and pulp industries used 260,000 h.p.; iron, 235,000 h.p.; electro-chemical, 90,000 h.p., and textile, 40,000 h.p. The total power developed from coal and oil for industrial purposes is approximately 400,000. Of the installed water and steam power, about 60 per cent is transformed into electric power.