Advertising Rates.

LEGAL ADVERTISMENTS :

First Insertion, per line	$ 10
Each subsequent insertion, line	5
Business and professional cards, 1 month	1 00
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Timber Claims	10 00
Locals, per line each insertion	5
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RATES OF SUBSCRIPTION.
(STRICTLY IN ADVANCE.)

One year	1.50
Six months	75
Three months	50

The Tillamook Headlight.

Fred C. Baker, Publisher.

HIGH PRICES FOR TANBARK.

Oregon Uses Vast Quantity and Pays More for It Than Any Other State.

In 1906 Oregon used 17,000 cords of oak tan bark, valued at $437,000 or $27.83 a cord. It used 1,200 cords of hemlock bark, valued at $12,900 or $10.50 a cord, The total was 18,300 cords, valued at $486,500 or $26.66 a cord. California used nearly twice as much, the per cord value being $20.48.

Tan bark brought the lowest price in New Hampshire, and the highest in Oregon, with an average of $9.30 per cord. More than i bark the price to extract varied widely according to the material from which it was manufactured. The extract of quebrucho, a tree of Mexico, Central America, South America, and the West Indies, from which seven-eights of all imported tanning materials are secured, had an average price of $18 per barrel; and hemlock brought $12.00 per barrel; oak $9.90 per barrel, and chestnut $9.12 per barrel.

No other nation produces half as much tanned, curied and finished leather as the United States, which yields over one-fourth of the world's supply. Six hundred and seventeen tanneries contribute to this output. The raw material includes 108,000,000 hides and skins, including a large number from Argeutina. To tan this immense quantity of leather, valued at over $250,000,000 last year, required over 1,250,000 cords of tanbark, worth nearly $13,000,000 and more than 650,000,000 barrels of tanning extract, worth $8,700,000.

Over two-thirds of the tanbark consumed comes from hemlock, and over one-fourth from oak; chestnut and other woods contribute the remainder. More extract is secured from chestnut, however, than from all other domestic woods combined. A small quantity of extract of a little over 1,000 barrels comes from the roots of palmetto.

Although the tanning industry is widely distributed over the United States, the greater part of it is carried on in the states of Pennsylvania. New York, Michigan and Wisconsin, which use more than two-thirds of the tanning materials consumed. Pennsylvania alone consumes over 900,000,000 pounds of bark and extract worth $8,000,000, or 37 per cent of the total value.

Since 1900 the quantity of tanbark used has fallen off 15 per cent, although its value has increased. During this period the consumption of extract increased from $67,000 to 660,000 barrels a year, of which nearly 90,000 barrels were imported. Relatively small quantities of hemlock bark were imported from Canada, and of mangrove bark from the West Indies and Africa. In weight, four times as much quebracho was imported in bark as in extract form, but the value of the two forms was about the same.

An official of the Indian Department states that the Utes have gone to farming and are thus "taken out of the category of curios" Is the white man prepared to prove that a person who won't work is a curio ?

The United States will be represented in the Tokio world's fair a few years hence, but not by American stewarts in the restaurants. But then the show will have an Honorable Court of Cherry Blossoms instead of a pike, warpath or midway.

Every Agriculturist a Bacteriologist.

A knowledge of bacteria in their relation to man has been confined largely to scientists and to the medical profession, who have dealt with the pathegenic or disease producing varieties, and the public is ever ready to accord them the highest tributes of praise for what has been and is now being done to alleviate the suffering of both man and beast, by controlling the organisms which are the specific cause of disease.

The modern agriculturist should possess a better understanding of bacteria and their actions than the physician, because not only does he have to deal with those which produce disease among his herds and flocks, but with all those non-disease producing varieties which are the foundation of agriculture. Their presence in the soil is absolutely essential in the production of plant food by decomposing all organic matter and reducing it to more simple elements that it may be absorbed by plants of a higher order for their nourishment.

It is an established fact that bacteria, which are sometimes called germs, microbes, micro organisms, etc., belong to the plant kingdom and are the lowest form of plants, being unicellular and of microscopic dimensions, their size averaging about three twen y-five thousandths of an inch. Each plant under favorable conditions multiplies by dividing two every hour; they also produce spores or seeds which are very resistant to the elements, and not unlike plants of a higher order, they require food and moisture to induce their growth. Each variety of these plants prefer and grow best in certain materials and in consuming this as food, they extcrete or convert it into chemical substances peculiar to their kind, called ptomaines, which are usually in the form of more simple elements than before they began their activities.

After some varieties of bacteria have consumed a part of, or all the material which favors their growth, other varieties begin their activities by using as food the ptomaines of the varieties which preceded them. As an illustration, fresh cider contains a certain amount of saccharine matter, the yeast plants finding this to be their natural food soon convert it into alcohol by splitting up the sugar and liberating carbonic acid gas. As soon as some alcohol is formed, another variety of germs, the acetic acid ferments, use as food the alcohol thus provided for them by the yeasts, then their products, in the presence of air, are converted into acetic acid, or vinegar. Thus it is with all organic matter: there is a constant transformation going on through the powerful activities of bacteria which are the prime factors in reducing it. No organic matter possesses the power of self decomposition.

An agriculturist should not fail to give good share of his attention to the growth and care of many varieties of bacteria which are his best friends, as agriculture without them would be an impossibility. Deprive the soil of its bacterial flora, and it soon becomes nonproductive and sterile, no matter how much organic matter may be present. On other hand, if the soil is well supplied with vegetable matter, it will be found to contain millions of bacteria per gram. That this mass of living plants are instrumental in bringing about physiological and chemical transformations is without doubt; the more material they have to work upon the more plant food they return to the soil.

It has already beeu stated that some organisms require the action of another species upon organic matter, before they can begin their activities. Thus it may be explained that some soil contains an abunbance of plant food which is not in available form until the introduction of some other variety of micro-organisms that unlock it through the action of their chemical products.

Barnyard manure is usually looked upon as a nuisance, yet it contains a high percentage of available plant food and is a mass of bacteria of different varieties. Any soil receiving a coat of manure is not only benefitted by the plant food which the manure contains, but it become inocculated with great masses of bacteria which are very important in assisting the decomposition of organic matter in the soil.

Since it has been known that nitrogen is one of the essential plant foods, and the most expensive, when applied in the form of a commercial fertilizer, efforts have been made to find some means of accumulating it from the atmosphere, which contains a large amount, through organisms that grow upon the roots of leguminous plants as parasites. These efforts have been so successful that now pure cultures of the nitrifying germs are artificially grown and sold for the purpose of inoculating the soil.

Another means of accomplishing the same end is by taking the superficial soil from fields upon which the legumes have been grown, scattering it upon the fields supposed to be devoid of nitrifying germs, thus inoculating them with the desired varieties.

While this last method may be good, there is an element of uncertainty about it.

The agriculturist should bear in mind that well rotted manure contains these desirable varieties of germs in abundance and that spreading it upon the fields which are intended for growing the legumious plants in a simple and inexpensive way of inoculating the soil with the desired germs. Poultry droppings are very valuable as a fertilizer and as a means of carrying nitrifying germs to the soil. The manure heap is the farmer's chemical and bacteriological laboratory, from which he can obtain the most valuable chemicals and organisms to assist plant growth.

Manure has an alkaline reaction which favors the growth of the nutrifying bacilli. As considerable of our soil is acid, the application of manure not only inoculates the soil with nitrifying gems, but neutralizes it to a certain extent at the same time.

Sowing clover, or inoculating the soil with nitrifying gems when the soil is acid is useless, as neither clover nor the bacilli will grow in the presence of acid. We must then resort to neutralizing the soil so that both plants may grow. This may be accomplished by applying to the field dry slaked lime either before or at the time of sowing the seed. To those who desire to prepare their own cultures of nitrifying germs for clover, take,

Water	1 liter
Biphosphate of Potash	1 gram
Magnesium sulphate	1-10 gram
Glucose (powdered)	15 grams
Iron sulphate	5 milligrams
Manganese sulphate	5 milligrams
Sodium Chloride	1 centigram

Place these in a large bottle, or flask, using a wad of cotton batting instead of a cork, then place the container in a steam cooker, or deep tea kettle and boil one hour for three successive days. This will sterilize the material which will then be ready for planting the germs; then secure some nodules from the roots of clover plants, clean thoroughly before removing them from the roots, dip them into a weak solution of bichloride of mercury (one part to 1000 of water) for five minutes, rinse well in clean water (preferable boiled water), then by the aid of small tweezers remove the nodules from the roots, and then after crushing, place them in the bottle of culture medium; after a day or so the liquid will become turbid by the growth of the germs. Allow this growth to continue for a couple of days longer, and there will be billions of germs which may be transferred to the clover seed by sprinkling the liquid on a pile of seed and stirring at the same time, insuring the wetting of each seed.

After the seed has dried it may be sown in the usual manner. In this way each seed carries many germs to the soil in the immediate vitinity of the young plant.

The glucose in the medium will not all be consumed by the germs in the bottle, in that length of time, and what remains will cause the germs to adhere to the smooth surface of the clover seed.

The manipulation of this is very simple and quite within the reach of any of the modern agriculturists.

Caring for bacteria in the soil means to provide such conditons that those which are desirable may be so stimulated as to perform their highest functions and hold in check the growth of those varieties that are detrimental to plant growth.

The grater number of bacteria are found in the upper layers of the soil because the majority are aerobic, or require air for their growth and there is more organic matter there for them to feed upon than there is in the deeper layers.

When a soil is loosened by a growing crop and frequent cultivation, more air is allowed to circulate through the soil and stimulates the growth of organisms, thus returning to the soil a larger amount of plant food at the time when the plants most need it.

Soil that is properly drained is aerated to a greater depth, stimulating a more thorough decomposition of plant roots, and a retention of moisture for the organisms to carry on their work, therefore conditions of the soil which are conductive to the development of bacteria will insure plant growth of a higher order.

One of the gratest abuses of the soil is to destroy its bacterial content by summer fallowing as practiced in some localities where the land is plowed and allowed to bleach all summer in the scorching rays of the burning sun. Nothing in nature kills more bacteria than sunshine and for that reason no soil should ever be left unprotected. If the organisms are destroyed, decomposition of organic matter ceases, which is a detriment to the soil.

Instead of destroying bacteria of the soil, they should be fed, cultivated and stimulated with plant roots and vegetable matter to the fullest possible extent for bacterial growth comes first and crops are dependent upon their activities.

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