

## Say It with Flowers

Greenhouse Tulip Bulbs  
\$1 per 100

Hyacinth Bulbs  
\$2 per 100

## The Sawell Greenhouses

### To the Farmer:

The purchase of a Piano or Victrola is only purchased invariably once in a lifetime. Therefore it behoves the purchaser to get the best and make sure you have the best.

I have had 25 years experience in tuning and repairing musical instruments, therefore feel quite confident I can choose the best instruments on the market.

I shall be pleased to place any instrument in your home beside any other in fair competition and let you yourself be the judge, without you feeling under any obligations absolutely. I can also save the purchaser quite a few dollars on account of my expenses being so low. I will always give you my best personal service and devote the whole of my time to supplying the country people. A postcard or telephone call will oblige.

Yours truly,

**F. WATERS**

Telephone 30-4, Waterdown

Dealer in "His Master's Voice" Victor Victrolas, Records, Etc

## A. C. SINCLAIR

AGENT FOR

Massey-Harris Farm Implements  
O. K. Potato Planters and Diggers  
Louden Stable Equipment

A Good Stock of Repairs Always on Hand

Phone 186

Waterdown

# ALTON'S

## HARDWARE AND GARAGE

Battery Service Station  
Batteries Re-Charged

Tires at Standard Prices

30 x 3½ A. W. M. \$16.50, No. 1 quality  
Prices on other sizes offered accordingly

Both Kinds of Gas

**Alton Bros.**

Phone 175

Waterdown

## The Farm

Timely Articles by the Ontario Department  
of Agriculture, Toronto

### THE FOODS OF PLANTS

Like Human Beings, They Need  
a Balanced Ration.

Poor Plant Growth Without Nitrogen  
—Phosphate Also Required for  
Best Results—The Dieting of  
Plants Explained.

(Contributed by Ontario Department of  
Agriculture, Toronto.)

Plants, like animals, require food! Their food consists of simpler substances, but it is none the less necessary. In general farm practice we do not feed plants; but we grow them in a soil, from which and the surrounding air, we expect them to gather their food. In nearly every instance there is an abundance of food around the plant, but it is not always in a form that it can be absorbed. Sometimes there may be an abundance of some of the food constituents and very little of others. We recognize the importance of a balanced diet for man, but fail to realize that it is just as important for the plant.

**The Soil Must Have Nitrogen.**

Fortunately, while there are quite a number of essential parts to the balanced diet of a plant; there are only three or four that it has difficulty in getting, and, of these again there are two that are more frequently deficient than others. These are nitrogen and phosphoric acid. There is a great store of the former in the gaseous form in the air around us, as much as approximately 70,000,000 pounds over every acre of land. Yet, because the plant takes its nitrogen in a soluble form through the roots of the plant, this inert, gaseous nitrogen is of no use until it is taken into the soil and rendered available. Among other methods of getting this nitrogen into the soil, nature has provided that if we grow legumes, such as clover, peas, etc., we will get some of this nitrogen built into the plant. Then on the decay of the accumulated vegetable matter from these and other plants, the nitrogen is left in the form that is of use to plants.

This means that decaying vegetable matter in the soil is the main source of nitrogen as a food for farm crops other than legumes. We may be quite sure that if the soil is low in decaying vegetable matter there will be a small amount of nitrogen. Without plenty of available nitrogen we cannot get the abundant growth of leaf and stem that is necessary; ne-

cessary, because it is in the leaf that the carbon dioxide taken from the air is built up into sugars, starch, and other compounds of like nature, and that anything that limits the size of the leaf just as surely limits the plant's ability to make and store these compounds. Nitrogen forces big leaf and stem growth, hence its great value in crop production.

The decaying vegetable matter, however, does more than furnish nitrogen; it improves the physical condition of the soil, thus making it easier to work. It increases the ability of the soil to hold water, thereby insuring better returns in dry weather, and in its decay furnishes acids which help to bring insoluble plant food into an available condition. These are strong statements to make about any constituent of the soil, but they show the importance of growing catch crops to plough down as frequently as possible in the rotation. A legume naturally is the best crop, but where this is not possible, or too expensive, grow rye, rape, or some crop that will furnish organic matter to the soil.

**Phosphate Also a Necessary Food.**

The element next to nitrogen in importance is phosphorus. Nitrogen can be got from the air by leguminous plants, but the phosphorus supply in the soil can be supplemented only by adding some form of manure or fertilizer. The supply in the soil is comparatively small, and is naturally held in an insoluble form, so that losses by leaching may be reduced to a minimum. So firmly is the phosphorus held, that in our study of the soils of the Province, we find that after nitrogen, no plant food constituent that may be added will give so decidedly good results as phosphorus. This is especially true when applied for the cereal grains and turnips. On fall wheat, 400 pounds of acid phosphate per acre has doubled the yield, and basic slag on heavy soils has given even better results. On soils fairly rich in vegetable matter, and thus well supplied with nitrogen, there is usually no need of supplementing the general manuring with anything but the phosphate, the exception being when fall wheat has wintered poorly and is having a hard time to make growth in a cold backward spring. Then an application of nitrate of soda at the rate of 100 to 150 pounds per acre on the poorer parts of the field will usually pay well.

Turnips have difficulty in absorbing phosphates, hence although the ground is usually well manured for this crop, it will pay to add three or four hundred pounds of acid phosphate per acre. On ground that was rich enough to grow twenty-five tons of turnips per acre we have raised the yield five tons by the use of three hundred pounds of acid phosphate per acre.

The points to be kept in mind are that while nitrogen is so valuable there is a very large supply in the air which can be got through the growing of leguminous crops, and that the phosphate, for various reasons, have a peculiar value when used to supplement good general manuring and good cultivation.—Prof. Robert Harecourt, O. A. College, Guelph.

"Water in the farm house" should come either before or just after the automobile.

Head lettuce requires cool moist weather to head well. The loose leaf sorts are best for warm weather.

Prepare orchards for spraying for San Jose Scale and other pests by pruning and scraping off loose bark. Be sure that all seed corn and root seeds are secured from the best sources available, and are in ample quantities for spring seedings.

### EFFECTS OF CROPPING

Sure to Exhaust the Best Soil  
in Time.

Plant Food Must Be Supplied—  
Mother Earth Has Her Limits—  
Seven Rules for Poultry Raisers  
—Breaking Up Broody Hens.

(Contributed by Ontario Department of  
Agriculture, Toronto.)

Lands that have been farmed for half a century usually show a decrease in crop production. A few farms that have been well managed in the various sections of Ontario are still very productive. Some have been so depleted of the plant food materials that were accumulated during the period of forest development as to be unprofitable under tillage today. Previous to clearing and cropping the process was accumulating fertility. Since cropping has been practiced the process has been reversed and supplanted by one of expenditure. Under a farming practice that exhausts the humus and returns no vegetable matter the soil hardens quickly, dries out and becomes non-productive, simply because there is neither food nor soil life to release such to growing plants.

**Mineral Elements Become Exhausted.**

Frequently one of the mineral elements—lime, potash or phosphorus—is exhausted by cropping or leaching. Nitrogen exhaustion is a very common condition noticeable in lands that have been cultivated for more than twenty-five years. After all, the soil is only a storehouse for those elements required in the life processes of the food plants that the farmer grows. In that storehouse various forms of life are at work converting the unusable to a usable or food condition for the plant. If we crop for years and exhaust the nitrogen or the potash or the phosphorus to a point where any of such could not be supplied in quantity sufficient to meet the full demands of the growing plant then we have a condition of plant mal-nutrition or starvation.

## For Mud and Slush You Need these Rubber Boots

Every farmer—every member of his family—every man who works out-doors in all kinds of weather—needs the dry, foot-comfort given by Ames Holden Rubber Boots.

For use on the farm, Ames Holden Rubber Boots are easy to wear because they're ounces lighter in weight, but they have the toughness that only pure rubber—pressure-cured—

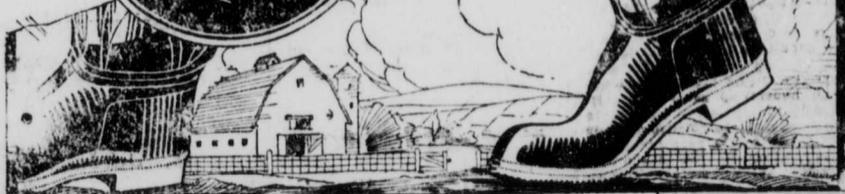
and years of experience in making rubber footwear can give.

Ames Holden Rubber Footwear is built for long wear, otherwise the iron-clad guarantee couldn't be tied to each pair. We stand behind it because it means full value for your money.

The next time you need rubbers ask us for

## AMES HOLDEN RUBBER FOOTWEAR

For Sale by  
Estate of Jas. E. Eager  
Waterdown, Ont.



Look for  
the Ames  
Holden  
mark on  
every pair