

what is meant by inoculation. Where the crop has never been grown, the bacteria are not usually present, or only in such small numbers that it is necessary to supply them. The few bacteria naturally present, or carried into the field by chance, spread so slowly that the plants are usually killed by weeds before they can profit by the bacteria and outgrow the weeds. For this reason it is good practice to inoculate and help the plants start vigorously by giving them bacteria, rather than trust to chance. Through these bacteria the plants can feed on the nitrogen of the air as well as that of the soil.

There are two ways to inoculate: 1. by means of soil transfer, and 2. by means of artificial cultures. Inoculation by soil transfer is simple, inexpensive, and with reasonable care, generally successful. Soil about six inches deep with many root nodules in it is obtained from old alfalfa field, or a field growing sweet clover, and scattered on the new field at the rate of at least 300 to 500 pounds per acre. It is then harrowed in while the seed bed is being prepared.

In case only small amounts of soil with numerous nodules in it can be had, it may be powdered and sifted on the seed which has been moistened with a glue solution (one pound liquid glue in one gallon water). The seed should be mixed with the soil until every grain is dirty. After the seed is dried and screened to break up any clumps, it may be sown. Unless exposure to the sun should be avoided.

Artificial cultures can also be used successfully. They are distributed by various firms and state agricultural institutions with complete directions for their use and are usually applied to the seed rather than the field.

A few precautions are important when inoculating. The soil used must contain the bacteria as shown by plenty of nodules on the alfalfa or sweet



Where the Pasture is always Rich. Mixed crop of Timothy and Alsike on a one-time real estate subdivision in the outskirts of Edmonton. Photo taken July 25, 1918.

clover roots. It must be thoroughly distributed either on the field itself, or on every seed. Artificial cultures must be used according to the directions. When properly used by the farmer who follows all other precautions for alfalfa, inoculation will do much to guarantee a good stand of this valuable forage and hay crop.

Perennial Sow Thistle

There are still thousands of farmers who cannot identify the Perennial Sow Thistle on sight. Especially is this true in the areas where it is not generally distributed, and, as prevention is better than cure, and recognition of the plant when it first appears on a farm is the secret of easy combat, the Manitoba Department of Agriculture sends out this intimate word description, by which any farmer may identify this exceedingly dangerous weed. There is

WALLIS

POWER--SPEED--DURABILITY

A tractor should be judged not only by how many plows it pulls, but how fast it pulls them day after day. It is just as wasteful to plow too slowly and waste time as it is to plow too fast and rack the tractor and plows to pieces.

This new type Wallis pulls three 14-inch bottoms, six to eight inches deep at the rate of two and a half miles per hour.

This means 19 1/2 acres per ten-hour day, which is equal to the work of ten good horses. The average tractor is designed to pull the same load at the rate of 1 1/2 miles per hour, or 7 1/2 acres per day. Thus the Wallis does practically 50 per cent. more work in the same time. This is a factor of vital importance, especially when plowing season is cut short by weather conditions.

Economy—Determined by Work Done

The amount of work a Tractor will do for you determines its economy. Purchase price alone bears no direct relation to the cost. True value can only be determined by work done over a period of years.

The Wallis Tractor will give you the greatest returns for your money because, with reasonable care, it will do the greatest amount of work in the shortest time, and will last the longest. The service comes from the advanced type of Wallis design, which combines power, speed, light weight and durability for the first time. This is one of the greatest accomplishments of the Wallis Ideal.

Light Weight—A Vital Factor

Simplified design, excellence of materials, and most expert workmanship are responsible for this light weight which produces remarkable durability and power. As one indication of where a lot of unnecessary weight is saved look at the exclusive Wallis frame design.

This member is made of boiler plate, rolled into a U shape. It serves the four-fold purpose of frame, bottom of crank case, transmission case, and rear axle housing. This

method of building eliminates all heavy 1" beams, braces and counter braces and with them a tremendous lot of useless weight. This U shape construction is the lightest and strongest known to mechanics. It is typical of Wallis simplicity and strength. On pages 24 and 25 of our new catalog this advanced type of construction is clearly illustrated and explained. It will pay you well to read it.

Multiplied Power

The advanced type Wallis, because of a simplified design weighs just a little more than 3,000 pounds. It saves, according to a recently published reliable Tractor Directory, from 1,000 to 2,000 pounds of weight, as compared with other Tractors designed to do the same work. Experts know that in the average tractor 40 per cent. to 50 per cent. of the power generated by the motor is required to propel its own weight. Plainly, every added pound of unnecessary weight is paid for in loss of draw bar power. In the Wallis, due to its light weight, the power usually required by the average tractor to move this light weight, is turned into draw bar pull, increased speed, and more work done. The Hyatt Roller Bearing Company's tests prove that the Wallis develops 20 per cent. more draw bar power for work 74 per cent. of the power developed by the motor.

This means that from every gallon of fuel the Wallis now gets practically 50 per cent. more power.

In the Wallis all gears are drop forged, cut and hardened. The materials are the finest. Besides being carefully finished, they are enclosed in dust-proof cases, and move in a continual bath of clean oil, furnished by our positive oiling system. Rough cast gears, according to experts, absorb 25 per cent. to 30 per cent. of the engine power.

Rewards of Leadership

Today the Wallis Tractor is conceded by all to be the most advanced type of Tractor. Efficiency of the excellent design and construction of this machine has been proved by the service which Wallis Tractors are today giving their owners in the United States, England, France and Italy.

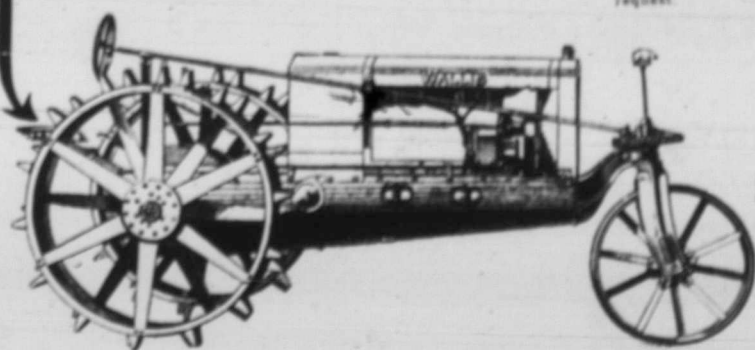
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