

PLOWING STRAW UNDER

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Straw Contains Nitrogen And Organic Matter; Methods Used To Secure The Desired Results From Straw

IT HAS often been noticed that the crop planted immediately following the plowing under of a heavy growth of wheat or barley straw is much lighter than the crop on an adjacent field which has had the stubble burned off. From this is sometimes drawn the conclusion that the burning off of the straw is the better practice. But when succeeding crops are considered, as they must be in any permanent system of agriculture, the value of the plowing under of the straw becomes apparent for the nitrogen and organic matter are lost by burning and these are the most important constituents of the straw.

The soils of the semi-arid Southwest are almost without exception low in nitrogen and organic matter. This is chiefly due to the sparse vegetation on the virgin soils and to the high rate of decomposition of organic materials in the soil because of the favorable conditions for bacterial action throughout the year. This necessitates the frequent application of organic matter in some form. This need may be cared for by the application of manure and by the plowing under of green manure crops. But these practices require a considerable expenditure of time and money, whereas the plowing under of the straw or crop residues which are already on the land may be done without additional expense and thus furnish a portion of the necessary organic matter at a very low cost.

When fresh straw is turned over it begins to decay as soon as it becomes moist. This decay is caused by the bacteria and fungi which are present in the soil. All of these bacteria and fungi which aid in the decay process require nitrates for food. As it is in this form the plants take their nitrogen there is an immediate competition and the young plants suffer. After the straw has partly decomposed and many of the bacteria have died the nitrogen used by those bacteria is again liberated in available forms. This explains why crops planted after the straw has largely decomposed are more favorably affected.

It is always advisable to plow under fresh straw as long before plant-



Wheat Stubble Should Be Plowed Under After Harvesting Crop

ing as possible so that it may partially decay before a crop is planted on the land. But there are times when it is desirable to plant another crop before there is time for this decay to take place. The addition of available nitrogenous fertilizer, such as Ammonium Sulfate or Calcium Nitrate, after the crop is up will provide enough nitrogen for both crop and bacteria.

Whether such an application of fertilizer will be profitable or not depends upon the value of the crop, the available nitrogen originally present in the soil, and the supply of other organic materials obtainable. Certain very fertile soils will supply enough nitrogen for both plant and bacteria and on these soils further additions of nitrogen are unnecessary. On some soils which are in good physical condition the straw may be burned off, but in such cases the succeeding crop should be followed either by a heavy application of corral manure or by a green manure crop, preferably a legume. Soils in poor physical condition usually need organic matter and on such the plowing under of straw is a profitable practice, even if a soluble nitrogenous fertilizer cannot be supplied, for the beneficial effect on soil aeration and moisture penetration will, in most cases, more than make up for any ill effect due

to the lowering of the supply of available nitrogen.

The plowing under of rotted straw does not decrease the following crop because a majority of the bacteria which affect the decomposition process and use nitrates have acted and are dead. The plowing under of legumes, such as clover, peas, or alfalfa, does not injure the succeeding crop because these plants are high in readily available nitrogen and there is a plentiful supply of both bacteria and plants. Leguminous crops, when their roots are properly inoculated with nitrogen fixing bacteria, are not affected by the plowing under of straw because they secure most of their nitrogen from the soil air rather than from the supply present in the soil humus.

Summary and Recommendations

1. Crops planted on soil immediately following a heavy application of straw often grow poorly until the material has decomposed. Legumes, properly inoculated, are not affected.

2. Leguminous plants, immature growth of any kind, or rotted straw or manure do not have the effect of delayed growth.

3. It is advisable to plow under straw as long before planting as possible. When it is necessary to plant soon after plowing, it is sometimes

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HOW TO GET MOST FROM YOUR TRACTOR

Knocking and Other Causes

Loose bearings will, of course, knock or pound. This symptom usually appears gradually in the case of a worn bearing, except in occasional instances where a bearing may overheat and burn out within a few minutes and cause a very noticeable pounding, which occurs rather suddenly.

A hot bearing which has not yet melted out but which has become tight through expansion due to overheating sometimes causes a knocking. This, too, usually occurs suddenly. That is, it may develop within a very few minutes, while in the case of a bearing which is gradually wearing, the knock may be barely noticeable at first and gradually increase over a period of several hours, or even days.

A piston which fits the cylinder too tightly is the occasional cause of a knock. A pounding from this cause is likely to occur only with a comparatively new engine or one in which the pistons have just been replaced with new ones. More often, however, when the piston is the cause of a knocking

it is due to a loose fit in the cylinder, producing what is usually called a piston slap, caused by the piston being moved quickly sidewise by the "throw" of the connecting rod.

The engine flywheel is usually so firmly fastened to the crankshaft that there is little chance of it coming loose, but there are rare occasions where the flywheel does become loose and cause a very pronounced knock or pound.

Insufficient cooling which results in the engine overheating and preigniting will, of course, cause a knocking, the same as an advanced spark or hot carbon deposits.

Timing gears which have become worn so as to permit considerable "backlash" will cause a light knocking or pounding, usually most noticeable at low speeds.

Very often a knock or a pound in an engine is caused by a missing in one or more of the cylinders. Bearings which will operate quietly when the engine is hitting regularly sometimes pound noticeably when the engine is missing.

Glued Paper Tape Is Handy
A roll of glued paper tape is handy

in the kitchen for many uses. It is good to label jars and cans and to hold paper linings smooth in drawers or on shelves.

QUESTIONS AND ANSWERS

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be classed as cloudy during the winter time, and often fewer during the spring and summer. Our average temperature by months is as follows:

January	49.2	July	86.7
February	52.6	August	84.7
March	58.3	September	80.0
April	64.3	October	68.9
May	72.3	November	57.6
June	82.5	December	50.4

The average temperature is 67.3
—H. V. Smith, Ass't. Agri. Chem.

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a better practice to burn off the straw than to plow it under. A heavy application of organic matter should follow this crop in order to keep the soil in good physical condition and keep up the supply of decomposing organic matter.

4. On soils which are in poor physical condition the straw should be plowed under and if possible, a soluble nitrogenous fertilizer added to insure the crop.

Alfalfa Hay In Dairying

Alfalfa hay that is cut at the right stage and has been properly cured and stored has few, if any, equals as a hay for dairy cattle. It is very palatable, and it is quite common for Holstein cows, in milk, to eat more than 30 pounds per day. Reports have been made of consumption of as much as 70 pounds per day. With some succulence, as corn silage or roots, it forms a foundation for an ideal dairy ration.

Buttermilk Is Good Food

Buttermilk contains a number of organisms which produce lactic acid. This acid prevents putrefaction in the intestines and thus makes buttermilk a valuable food. The casein in it is in a finely coagulated form which is easy to digest.

Doctor: "Why are you in such a hurry to have me cure your cold?"

Pat: "Because I've lost my handkerchief."

"What's the charge, officer?"

"Driving while in the state of extreme infatuation, your honor."

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