FARM AND HOME

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All Around the Farm.

IN THE CORN HARVEST.

The corn harvester has been improved and perfected to a degree that makes it as satisfactory and reliable in the corn field as the grain binder in the wheat field. It cuts 8 to 10 a per day, taking up the corn clean and leaving the bundles in windrows convenient for shocking. The newest pattern harvester will cut and bind big corn, little corn, down corn, lodged corn, or any other kind of corn that grows in rows. Long dividers extend in front of the machine on each side of the row. The points of these dividers can be tilted so low, if necessary, that they plow the ground to get under corn that is laid flat. These dividers extend back to a high position over the binder, so that they keep very tall corn in a compact bundle in the binder. A peculiar feature of one of this year's machines is a sprocket conveying chains with locked joints. These locked joints allow a chain to bend in one direction to go around the sprocket wheels like any other sprocket chain, but will not let it bend the other way. The chain stands rigidly against the corn. Ordinary sprocket chains, if used as conveyor chains on a corn binder, bend and buckle and the projecting fingers turn and allow the lodged corn to slip back and choke the machine.

Heavy corn is very hard to cut, especially when it grows in hills. A reciprocating knife would have to cut an entire hill at one or two strokes and this requires so much power that it would choke the machine. The principal work of cutting is done by two stationary knives set ahead of the reciprocating sickle, one on each side of the row. These side knives are curved so that as the machine is drawn forward they are forced gradually against the standing corn with a slicing, drawing cut, which requires much less power to sever a corn stalk than a direct blow across it. The knives are swept clear of trash by a pair of sprocket chains, which run just above them and facilitate the work of cutting by holding the corn against the knives. These lower chains also move the butts along as the stalks are conveyed into the binder.

It has been found very difficult to put a satisfactory bundle carrier on a corn binder, especially on the "platform" machines which bind the corn on a low table in a horizontal position. The latest model machines have a very satisfactory carrier which holds three or four bundles so they can be dropped in windrows. This saves a man in shocking. Another very important advantage is that in ordinary corn the shock rows can be placed 50 hills or more apart, the distance varying, of course, according to the size of the corn. This leaves wide lands for fall seeding or plowing.

The stalks stand in the binder on a floor which can be raised or lowered to adjust the band and place it in the middle of the bundle in corn of any length. This plan of binding the corn in a vertical position on a level floor makes the bundles very square and even on the butts, so that they are easy to shock, and stand up well, and there are no projecting stalks in the butts to get deep in the ground and freeze fast.

The saving in labor is only one of the advantages of using a corn harvester. When corn is cut by hand the work cannot be finished, except on very small farms, until the fodder has become too dry and its feeding value impaired. Corn fodder is like hay in that it must be cut at just the right time in order to realize the most feeding value from it. With a corn binder the crop can be put in shock at just the right time. Another important advantage is that the work is done quickly, leaving time for fall plowing.—[R. B. Swift.

PROBLEMS IN WATER SUPPLY.

The results obtained in securing a water supply, in various sections and under various conditions, form an interesting study. Prof E. H. Barbour of Neb, who has made a survey of many western streams, hints at how water may be secured, as illustrated

FIG 1. TAPPING THE UNDERFLOW.

in Fig 1, by tapping underflow streams. A river bed may be dry, yet its course, sand and gravel, may be saturated with water. This water may be brought to the surface by tunneling back under the river bed a sufficient distance to get the required amount of fall. One Kan farmer, after tunneling into the underflow of a dry river a distance of 1300 ft, at a cost of about $1500, obtained a fine, steady stream of water, which in volume exceeded that from a neighboring pumping plant which cost 60,000. This enterprising farmer more than paid the entire cost from the first season's crops.

Where the country is uneven, it has been found possible to dig a trench from a farm located on heavy soil, but lower than the underflow up to the

FIG 2. TUNNELING INTO BUTTES FOR WATER

water, which usually has a bed composed of silt. This trench may even enter the underflow at right angles.

In the Butte regions water for irrigation purposes is sometimes wanted while held back by the abrupt hills or buttes. These buttes are sometimes composed of earth of a light character, while lower down is a hard bed of clay. By tunneling back on the surface of the clay, into the sand, a considerable amount of water may be secured, as shown by Fig 2. Very often a seepage streak may be met with, containing a steady flow. Such may be looked for at the foot of hills or buttes that are naturally more or less wet and will generally pay well for tunneling.

WHY CLOVER FAILS.

The middle tates sow wheat in the fall, turning down corn stubble therefor, and with the wheat is sown timothy seed. The following spring clover seed is sown broadcast over the wheat. In the crop rotation implied above, the most common rotation in this country, clover is depended on to supply fully half the total nitrogen fertilizer required for all crops of the rotation. If the crop fails, the nitrogen fails, of course. Unfortunately, too few farmers understand why a clover failure is followed by failures more or less complete in the following crops up to the fertilizing crop, this is usually wheat. It is simply a lack of proper plant food; following failures could easily be prevented by rational fertilization.

Many think young clover is "burnt out" by exposing it suddenly to the hot suns of July, when the wheat is cut. It is quite possible that young clover may be checked somewhat from this cause, but if the growth is full and vigorous there is no perceptible damage done, as many a farmer knows from experience. In fact, for some time before harvesting, matured wheat offers very little shade, else the ripening period would be lengthened, and also very irregular. Clover fails because the wheat has taken up practically all the available potash and phosphatic plant food in the soil, leaving the young grass to fight a battle with starvation. In the 4-yr rotation, ordinarily only the wheat is fertilized. If a yield of 20 bushels per acre is obtained, and that is a very low yield, the plant food actually taken up by the crop is in pounds as follows:

	Nitrogen	Potash	Phos acid
Grain, 1200 lbs	24	8	11
Straw, 865 lbs	5	8	2
Stubble and roots, 875 lbs	8	6	4
Total	37	22	17

This is the actual quantity of plant food required by the crop and it is beyond reason to suppose all the plant food applied as manure or fertilizer is utilized by the crop. With a crop of this size, the fertilizer applied to the wheat was probably 400 lbs, analyzing 2 per cent nitrogen (equal to 2½ per cent ammonia), 2 per cent potash and 8 per cent available phosphoric acid. A comparison of the plant food in the crop with the plant food in the fertilizer is interesting.

	Nitrogen	Potash	Phos acid
In crop	37	22	17
400 lbs fertilizer	8	8	32
Total	29	14	15

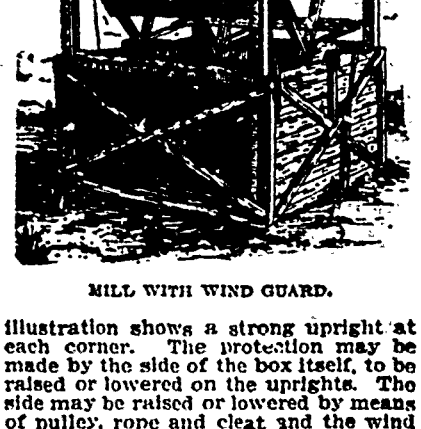
The figures show a surplus of 15 lbs of phosphoric acid, but a very serious shortage of both nitrogen and potash. Of course the reserves in the soil are drawn upon, thus wearing the soil on toward an inevitable condition of sterility. If the clover has been good the previous year, it is possible that the shortage of nitrogen fertilizer was made good by same. A good crop of clover, say two tons of hay per acre, requires plant food as follows—omiting the nitrogen which the clover manages to take from the atmosphere, and hence needs no artificial supply.

	Potash	Phos acid
Hay	88	17
Roots and stubble	24	8
Total	112	25

By the above figures the wheat crop shows a shortage of 14 lbs potash; this added to 112 lbs p a needed by the clover makes a total shortage of 126 lbs potash. In the case of phosphoric acid, the wheat shows an excess of 15 lbs and the clover a requirement of 25 lbs, hence the shortage is 10 lbs phosphoric acid. It is evident that using small quantities of fertilizer on wheat, with the expectation of holding a clover stand the succeeding year, can succeed only by a steady and severe drain on the soil, sooner or later to result in a worn-out soil and an abandoned farm. As clover must have about 1 lb of potash for every pound of nitrogen it stores up from the atmosphere, it becomes plain that a steady drain of this fertilizer means a sure failure of clover. A sure and simple remedy is to sow broadcast potash and phosphates over the clover shortly after the wheat is harvested.—[Byron Tyson, Moore Co, N C.

WINDMILL AIR REGULATORS.

A wind guard or cut-off is sometimes essential on a homemade mill to regulate the supply of air, or to stop the mill completely. For this purpose the



MILL WITH WIND GUARD.

illustration shows a strong upright at each corner. The protection may be made by the side of the box itself, to be raised or lowered on the uprights. The side may be raised or lowered by means of pulley, rope and cleat and the wind power thus regulated to varying velocities. Some use a sliding door instead of making the side of the box movable. Others hinge the bottom of the side so it may be laid flat on the ground, thus stopping the mill altogether.

The Potato Patch—On many farms the potato crop is a minor one. Often it is a small strip of land near the barn, and rotation is not practicable. In such cases there is no better plan than to apply manure early in Sept and plow it under 3 or 4 in. On this sow rye at the rate of 6 pks of seed to the acre. It will make a sod by winter, and grow in warm days of winter and early spring. It makes a splendid place to pasture the young colts, calves or lambs and to furnish a bit of green stuff for the poultry.

Muck as a Fertilizer—Few realise its value. Haul it this fall and leave it in the barnyard through winter. In the spring mix it with well-rotted manure and you will be surprised at the increase in the yield of crops.—[B. F. Hillman, Waldo Co, Me.

Windmills—What is the most durable tank on the tower of a windmill? asks G. W. M. of Ont. Can there be two automatic brakes on the mill, one for tank and one for watering trough? A wooden tank is as good as can be obtained if it is well made. In some places these are kept in stock or they can be made by any competent carpenter. An arrangement for shutting off the watering trough may very easily be made. It would probably be better to have but one connection to the mill itself and that from the tank. Connect the watering trough with the tank. A float in the tank may be arranged to turn on or shut off connection with the tank by turning a valve. There are a number of good mills, the makers of which advertise in F & H.—[Prof L. G. Carpenter, Col Exp Sta.

Fall vs Spring Plowing—My experience and observation has been, fall or winter plowing when ground is not frozen is much better than spring plowing. As a rule, late fall is a good time to plow and turn under weeds and seeds to rot until spring, making humus to enrich the soil. Insects will also be destroyed. Freezing and thawing will cause the ground to harrow into a mellow bed by spring. But if ground is clay soil, clean of weeds, fall plowing often is no advantage, as such ground will run together and form a crust on top hard to prepare for a seed bed.—[Jacob Faith, Vernon Co, Mo.

Breed Young Ewes—It is always more profitable to breed from young ewes as far as possible. Young ewes produce healthy and vigorous lambs at a less cost than old ewes.