

field after sowing it is generally believed that a light harrow should follow the roller to prevent an undue loss of soil moisture. Firming and smoothing the soil draws the deeper water to the top, the temperature rises, and sun and wind evaporate it quickly. Harrowing after rolling renews the mulch and prevents this trouble. Many consider that the best time to roll is before seeding. The roller may also be used to break a crust, which may form after a heavy rain after a field is sown. The light harrow is even more effective for this purpose, and may be used even after the grain is up unless clover has been seeded with it, and sometimes it does not appear to seriously damage this.

The objects of spring tillage are then to work up the land to a sufficient depth to make a good bed for the seed; to pulverize the soil into small particles to hold moisture and carry the plant food rendered available to the hairy rootlets of the sprouting seed and growing plant; to form a top mulch to retain all the moisture possible as long as possible; in short, to make conditions right for plant growth.

Only a brief outline has been given. We desire to draw out discussion. The practical farmer profits by hints from other practical farmers. Cultivation is a big question, and if you have proved anything by experience the results of that experience would be welcomed by our readers.

### "Sandy" Sets An Example.

Editor "The Farmer's Advocate":

It's mony a long day since I had time tae be writin' ye a word, for I'm no' as young as I was forty years back, an' in spite o' a' the progress o' science that they talk aboot, an' the improved machinery that the agents will be sellin' us, "tae economize time an' labor, an' keep the boys on the farm," I'm mair overrin' wi' wark than ever ma grandfeyther was. He was an unco' easy-goin' auld chap they say, an' a' he had tae brag aboot in the way o' harvestin' machinery was a sickle an' a scythe an' a cradle, but he aye got his crops in the barn in guid time, an' when he died he took aboot as muckle wi' him I guess as mair o' us hustlin', hurryin' farmers o' to-day will, when the time comes for us to be packin' oor trunk an' buyin' a one-way ticket tae the last jumpin'-off place. But onyway it's a busy warl' an' once ye're on the tread-mill ye hae tae keep goin', so ye'll ken that ma apology for no' writin' ye this lang spell is no' just a matter o' form. For I'm aye glad tae be able tae report progress, or mak' observations, or ask questions every once in a while through the columns o' the auld "Advocate." It's a poor fist I wad mak' o' farmin' wi'oot that same yellow-covered magazine tae help me oot, I'm thinkin'. An' at no time dae I find it sae inspirin' as when I canna' agree wi' what it says. For ye ken that when an auld Scotchman like masel' finds something he can object tae ye're gaein' tae see things movin' till he proves his point.

Noo, there's ae thing, for instance, that the "Advocate" has been preachin' tae us late an' early, an' that is that a guid example is likely tae be followed. Weel, it's no vera much in ma line, settin' guid examples, but here a couple o' days back I thought I'd just try an' experiment an' gin it warked a' richt I'd hae courage tae try anither. Ye'll ken that oor roads hereaboot get aye filled up wi' snaw in the winter-time an' we will be makin' roads through the fields till the snaw will be meltin' in the spring. Weel, ane o' oor roads this winter was made through a swamp, an' the w'y it twisted in an' oot between the stumps an' curved around the wee trees wad hae dune the heart o' oor college landscape artist ro end o' guid. Ye needna' tell me that some o' oor pathmasters hae no eye for natural beauty. Ye could na' get any closer tae nature than we did ilka time we went tae foot this winter. Hooever, when the snaw began tae melt a week or twa back this road among the stumps an' trees got sae bad as tae be the cause o' considerable profanity in the case o' some o' oor young men wha wad be gaein' hame late at night. "Noo," says I tae masel', "I'll just try an' see gin they'll follow a guid example for aince in their lives." Sae I broke oot the ither road in the land an' left it in guid shape. Then I pit a guid lang fence rail in baith the gaps where the auld road had turned intae the swamp, an' left it. The next day I was passin' along that way an' I thocht I'd just tak' a look an' see hoo ma road was bein' travelled. Weel sir, I'm a man o' few words, but I'm thinkin' I must hae used them a' when ma eyes rested on that auld road. Some fule had gone tae wark an' taken oot the rails that I had pit in the gaps, an' in the five minutes I was there I saw na less than three rigs come along an' gang wigglin' an' twistin' an' scratchin' through the stumps. "Weel, if that isn't a caution," says I tae masel', when I had finished in Gaelic, "it's no muckle wonder that Moses found it sae hard tae git the auld Israelites oot o' Egypt intae the land o' Canaan. Humanity hasna' changed over muckle in a' these years."

An' whin I cam' tae think the thing over I

says tae masel' again' says I, "It's an unco' fine illustration o' what's the matter wi' the hale lot o' us hard-headed farmers as they ca' us. Oor heads are that hard that we canna' get a new idea intae them. We get travellin' on ae' road an' oot o' that we canna' be coaxed or driven. Noo, it's ma firm belief that gin we mak' no change an' improvement in oor manner o' life over that o' oor ancestors, we micht just as weel hae not come ontae this auld airth at all. We hae been takin' up room that we didna' pay for, tae say naethin' o' a' the guid parritch an' potatoes we hae spoiled. What we should be daein' is huntin' the airth for new ideas an' better ways o' gettin' at the day's wark. These new ideas are a' aboot us, even in oor ain heads an' ither unlikely places. An' whin we get hauled o' ane let us try it oot. Gin it warks; guid an' weel. Gin it's a failure ye hae the experience, which ye can pass on tae others. I mind whin I was a sma' gaffer I was great on plans tae save masel' trouble, though they didna' always turn oot as I intended. One day I got an idea that I could mak' one o' the heifers at the barn draw me an' ma sleigh aboot, an' save me the bother o' walkin'. I got her cornered in an' the sleigh tied tae her tail a' richt an' then I started her up. It wasna' lang before I was goin' aboot twenty miles an oor, I should judge. By guid luck she kept the straight road for a while an' I hung tae ma sleigh, though ma wee cap was gone. But when she cam' tae the first corner she went around it like she had been practisin' on a race-course a' her life, an' me an' the sleigh went slap against the ither fence like we had been shot oot o' a sling. When they gathered me an' the wee sleigh up an' took us hame for repairs I didna' hae mony new ideas, or ideas o' ony ither kind. I can tell ye, but when I got aboot again I was what ye micht ca' rich in experience. I was filled wi' it tae the hat. Tae this day I'm strong on usin' everything for what it was intended. When I want tae gae for a drive I brith up a horse, but coos an' heifers hae lost some o' their possibilities.

Noo, the foregoing is just an' illustration tae prove what I hae been tryin' tae point oot. We hae got tae investigate, we hae got tae experiment, we hae got tae be ready tae receive new ideas an' impressions, gin we are gaein' tae mak' ony progress. An' if onything is sure it is that, that we are here tae mak' progress. Some auld poet pit it this way, "Let us live that each tomorrow finds us further than to-day." Gin we dae that we'll no' be gettin' firtrae ruts or gain' back intae auld roads; tae get back tae ma text, I'm a wee bit hot aboot that yet, Mr. Editor, between you an' me.

Glenarry Co., Ont.

SANDY FRASER.

### Plank Truss Barn.

Would you give me plan of a truss frame of plank for shed? Shed to be one hundred and twenty-eight feet by forty-eight feet and six feet high, to be one-third pitch.

A. M.

Ans. I find that it is impossible to design a plank truss strong enough for a span of 48 feet. The only way you can use planks to truss such a span is to build timbers up from plank. This I have done, and the accompanying cut shows you the size these timbers should be made. All joints should be made very carefully, and where iron straps are used you must put in three bolts



Timber Truss for 48 Feet Span.

about 1 inch diameter and well tightened up. These straps should be about 4 inches wide and 2 or 3 inch thick.

I have shown a 12-inch wall or column, if this is to be built of concrete you will not need any bracing to take care of wind pressure, but if these are only wood columns, then you will have to put braces at X between the lower chord of the truss and the column at every point. These may be made of hard-wood plank bolted to both sides of the column and lower chord.

This truss is designed to take 26 gauge corrugated iron roof, the purlins spaced at 2 feet centres, as you will see on the drawing.

All members which are built of plank must be exceptionally well spiked and bolted together and have all joints broken at least 6 feet.

A. A. G.

### Lime and Its Uses on Soils.

Editor "The Farmer's Advocate":

Our soil studies of the last two years have convinced me of the fact that large areas of soil in this Province are in need of lime. All the many chemical changes that are induced in a soil by good methods of cultivation tend to deplete the soil of lime. Consequently the soil of the older parts of this Province in particular are very often quite deficient in this essential constituent.

Light, sandy soils, because of their open, free nature, are frequently lacking in lime such soils are also very often deficient in phosphoric acid. They usually, however, have large stores of potash, which is naturally in a very insoluble form. This is characteristic of the sands of Norfolk County, of Caradoc Township in Middlesex County, and of the large sand areas in the neighborhood of Tioga and Angus in Simcoe County. Clays retain their supply of lime better than the sands, but even these are in many instances lacking in lime. When either type of soil, or the loams made of mixtures of these, becomes depleted of the natural supply of lime, it becomes difficult to work. The sands are so loose and open that they dry out quickly, and the clays are clammy and adhesive and readily bake into very hard lumps that are difficult to reduce. An application of lime tends to bind the coarse sand particles together and render the soil firmer, and it makes the clays more friable and easier to work. In this way alone an application of lime may be very beneficial.

Lime, however, does more than improve the mechanical condition of the soil. It corrects the acidity and sweetens the soil. Legumes will not grow in a sour soil. Alfalfa and clover may start in a soil deficient in lime, but they will not retain this hold on the soil. For instance, on the London Asylum Farm a part of an alfalfa field was limed. On that portion of the field there was a fine stand of plants which yielded a good crop last season, whereas, the unlimed part of the field lost fully four-fifths of its plants, and was an utter failure. It seems probable that many of the failures with alfalfa and clover are due more to lack of lime in the soil than to any other cause. They are lime-consuming plants, and the presence of an abundance of it in the soil is essential.

Furthermore, lime not only improves the physical condition of soils and corrects acidity, but it is an essential plant food constituent and it liberates potash and phosphoric acid from its insoluble and unavailable forms of combinations in the soil. In our soils the potash is held largely as silicates. The lime reacts with these and causes the potash to be liberated. Thus an application of lime may be as efficient as an application of potash. This is a very important point this year, when potash is practically unobtainable. The presence of an abundance of lime also reacts with the iron and aluminum phosphates forming the calcium phosphate which may then be brought into an available form by the acids formed by decaying vegetable matter in the soil.

As will be seen from the above, lime has many important functions to perform. At the same time it must be borne in mind that it is the mineral plant food constituent most readily leached out of the soil. An abundance of decaying organic matter is essential in cultivated soils, but in its decay

render the lime salts soluble. Consequently, the more organic matter there is decaying in the soil, the faster it will be depleted of its supply of lime. Good cultivation means free aeration of the soil, and good aeration means rapid oxidation of the organic matter. Thus it is that under the best methods of farming there is the most rapid depletion of the soil in lime. It is probably due to the fact that sandy soils are better aerated than the heavier clays that the sands are now the most frequently deficient in lime.

#### FORMS OF LIME.

As the term "lime" is used in agriculture it refers to any salt of calcium, but the forms most frequently used are the "burned" or "quick" lime, the carbonate of lime and gypsum, or the sulphate of lime.

The burned or quick or stone lime all refer to what is really the oxide of lime, and is the form in which most people are familiar with lime. This fresh lime is caustic in its effect and should be applied some time before seeding. If water is added to the quick lime carefully, the lime breaks down into a fine powder. This is slaked lime, or, with some additional mechanical treatment, hydrated lime.

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