ing the second layer, and so on alternately, until the package is completed, which sew or bind up neatly and compactly, in light straw or corn husk wrappers, which you may very easily learn to manufacture yourself.

These simple directions, strictly followed, will certainly result in the production of a superior article of leaf tobacco, and will insure the maximum market prices.—Cosmo.

Saving Liquid Manure.

We hear a great deal about dressing land with nitrate of soda, and various other chemical compounds, but does it ever occur to our agricultural friends that they possess in the liquid manure of their barn-yards and pig-pens these as well as that other fashionable ingredient, ammonia, in abundance? All of which, however, we see passing off down the ditches and high roads with every rain that falls, without any attempt to put a stop to the ruinous waste, while the owner is perhaps toiling for several miles to the city to bring back an expensive article of nitrate or sulphate of soda, or some other fashionable stimulant. The thing is preposterous, and if a tradesman were guilty of anything so perfectly thoughtless and wasteful, his friends would prognosticate his ruin at hand; but agriculture *may* bear it and even thrive under it, when other trades would be destroyed by it.

The last time I visited my old acquaintance, John Smith, I had enough to do to steer clear of a black stream of liquid manure, caused by a two days rain, which I met issuing from his barn-yard which must have robbed the manure of one-tenth of its value. I could not prevail upon him to sink a cistern and convey the liquid to his pastures; this was labour which he did not covet. Now, as I know he reads the *Telegraph*, I take this plan of giving him another gentle hint upon the subject.

In order to bring out the subject still more plainly, I will give a short account of experiments which have been made, and which prove the superior value of liquid manure.

The first experiment was on pasture, the soil sandy, subsoil sandy gravel and perfectly dry; four acres of the fields were well manured with first quality barn-yard manure at the rate of twelve two-horse loads per acre. This manure was applied in February. The remainder of the field (about an acre) was manured with liquid from the barn-yard.

In the spring the appearance of the grass, both in colour, height, and tackness of sward, was in favour of the liquid manure; during the summer the field was pastured with cows, and that portion manured from the liquid of the barn-yard was close cropped.

In a second experiment one portion of the field (a small one) was manured with a compost of night soil and wood mould, and the remainder with liquid manure; when the lot was mowed the line between could be easily traced, and the difference was strongly in favour of the liquid manure.

I do not wish to be understood to object to the use of sulphate of soda or any other chemical compound, but I do think that when we make use of all the means which are at our command at or near home, we may then think of buying these compounds, but not till then. My argument is, that it is not economical to buy stimulants (not manures) when in nine cases out of ten we can manufacture at home a manure which in effect will equal those purchased at a greater cost.—*Germantown Telegraph.*

Formation of Dew.

The formation of dew depends upon a property which all solid substances have, in a greater or less degree, according to their nature and outer surface.

When I hold my hand towards the fire, I feel the heat darting out from the fire to my hand. I feel it darting out in the same manner from a hot stove or from a hot flat-iron on whatever side of the stove or iron I hold my hand. The heat which darts out thus in every direction from any hot thing is said to radiate from it, because it comes out straight from it, just as the spokes (*radii*, in Latin) come out on every side from the hub of a wheel. If I observe carefully, I find that the heat comes out more abundantly from a stove the surface of which is very rough, than from one which is very smooth and I discover that the reason is, that every little projecting point radiates a stream of heat.

Now, what I find to be true of the surface of a hot stove is true of every surface. Every solid body is continually sending out heat in straight lines—radiating heat—from its surface. If several bodies are heated to the same degree, the one which is roughest will radiate and consequently cool most rapidly.

When the sun sets, all things which have been exposed to his heat send it forth by radiation, and grow cool. Those things which have the roughest surface, like the stems and leaves of grass, cool most rapidly. The heat thus radiated is sent out into the thin air, and if there are no clouds, is lost in vast space. The air which is near to these blades of grass imparts its heat to them and then grows cold. The air thus becomes incapable of holding in solution all the water it had dissolved, and deposits it, in minute particles, upon the surface of the grass. The radiation goes on, and the moisture continues to be deposited, till the blades of grass are covered with drops; and these drops are drops of dew.

Now, just as, by placing a screen before a fire, we prevent the heat from being radiated into the room, and send it back to the fire, so a screen of clouds stretched over the earth prevents the heat received from the sun from being rapidly radiated into the empty air, and thus prevents the formation of dew. We find, accordingly, that dew is formed only on clear evenings.—*Manual of Agriculture.*

Indian Corn.

To the Editor of The Canada Farmer:

Sir,—I have read with much interest the remarks by J. E., on this cereal in the Farmer of the 15th September. Corn is a crop to which more attention should be given in the peninsula of Canada West. The yellow eight-rowed corn is preferable for this locality, as it contains more oil and gluten than the white corn of the Southern States.

A few hints may not be unacceptable to those of your readers engaged in the cultivation of this plant.

A bushel of corn will shrink from the time of harvesting till thoroughly dry, about 22 per cent. Two bushels of ears will generally make one bushel of grain.

The average yield of corn in this latitude is about 25 bushels an acre, a good yield is 40 to 50 bushels, while 80 to 100 bushels have at times been raised.

For the proper cultivation of this cereal, the soil should be dry; standing water or moist soils do not produce good crops. The soil must be made rich and deep, as the plant feeds strongly, and carries the root deep.

Prepare your seed by selecting the most perfect grains, and previous to planting soak them for a few hours, to promote rapid vegetation, but do not allow them to swell and dry, as it destroys vitality.

Spread broadcast on your fields a top dressing of ashes, lime, and plaster, or add it to your hills or drills. Do not hill your corn. If planted in hills (or more correctly at the angles of the squares made by the marker,) let them be at least 3 feet 6 inches apart. If in drills let them be 4 feet apart, and each plan eight inches asunder.

Do not top your corn, but cut it at the butts, and shock it. It ripens better, and keeps better, gives a greater weight of grain, and better fodder. Plant not over one inch and a half deep. Plant from 1st to 15th May, thus avoiding frosts. Keep your corn free from grass and weeds; use the hoe and cultivator freely, do not wound the corn, and keep the soil loose.

Do not cut off the suckers unless your corn stands too thick. Air and sunshine are necessary, but it is very doubtful whether the taking away the suckers produces any benefit.

As a steep for corn use soft water sufficient to cover the quantity to be planted in a day, and add to it 2oz. sal ammoniac. Leave it in the steep till the corn begins to swell slightly. Nitre instead of sal ammoniac is excellent. Muriate of ammonia 1oz. for every quart is good.

As a compost for corn use the following:—One bushel gypsum, two bushels ashes, unslacked; mix, and add a gill to each hill when you plant, and before it is covered. When the corn is up add another gill to a hill.

To estimate the quantity of shelled corn contained on the cobs in any given space, level them, and measure the length, breadth, and depth, then multiply these dimensions together and the product by four. Cut off the last figure and you will have the number of bushels of shelled corn, and the decimal of a bushel. If you desire to know the number of bushels of ears, multiply by eight instead of four as above.

A. KIRKWOOD.

Preparation of Seed Wheat for Sowing.

To the Editor of The Canada Farmer:

Sir,—In your number of September 1st, under the above head, Mr. Kirkwood has given several methods of preparing seed wheat previous to sowing, with the view to the prevention of smut.

There is another method not mentioned by him, which, I think, deserves to be noticed, as being more simple, cheaper, and less troublesome than those he has alluded to, and which I have adopted myself for fourteen or fifteen years with complete success.

For every four bushels of seed take one pound of blue vitriol (sulphate of copper); dissolve in four quarts of boiling water, and when thoroughly dissolved, add two quarts of cold water, making six quarts of the water to one pound of the vitriol. Spread the seed wheat in a heap on the barn floor. Let one person pour the solution over the heap gradually, from a watering pot, with fine holes in the top, whilst another turns the wheat over with a shovel. Give the wheat four or five turns over after the solution is exhausted, in order that each grain may come in contact with, and absorb a portion of it. In ten or fifteen minutes afterwards the grain will be ready to put into bags, carried to the field and sown. The proportions given must in all cases be observed, whether the seed to be sown be more or less—that is, for double the seed take two pounds of the bluestone and twelve quarts of water, or for half the seed take ½ lb. of bluestone and three quarts of water, and so on. If less water be put the solution will be too strong, and some of the seed will not vegetate, and if more water be used it will be too weak and will not have the desired effect. This method was extensively used in that part of England from whence I came, and smut was unknown.

I had tried all the other plans in use here for several years, but always had more or less smut in both spring and fall wheat. From the time I resorted to the above method I never had a gram of smut in either. Many of my neighbours tried the plan with equal success, and if by chance a failure occurred, I found on investigation that the due proportions and proper exactness in the process had not been observed.

J. W. DUNSFORD.

Lindsay, 30th Sept., 1864.

Canada Thistles.—I see an enquiry for a good mode of killing Canada thistles in the *Country Gentleman* of July 21. I have seen several such enquiries before, and have been surprised that no one has given the true answer to them. Let your thistles grow as long as you can and not have the seed mature enough to grow. Then mow them close to the ground. The next year they will be few and weak, and a second cutting will finish them. I do not think that a "patch" of Canada thistles was ever subdued by ploughing or hoeing. Have tried both methods thoroughly several times, but always failed. Fields in which the Canada thistle has become troublesome should be stocked down and mowed, and they will soon disappear.—D. H. O., *in Country Gentleman.*

Bentley's Hay Loader.—This machine was patented in 1863, by the inventor, Mr. W. H. Bentley, of Westford, Otsego Co., N. Y. It supplies a most important link in the chain of haymaking by machinery. The "Hay-Loader" takes the hay from the winrow, puts it on the waggon, and rakes after. It is attached to the hay rack in a simple manner, which enables it to be drawn by the same team as the waggon, and it is set in operation by the act of drawing it along. By the united labours of the mowing machine, the hay-tedder, the horse-rake, the horse-unloading hay fork, and this new and admirable contrivance for loading hay in the field, everything connected with hay-making from cutting the standing grass to the stowing away the hay in the barn, may now be done by horse-power.—*Working Farmer.*

Irrigation on a Large Scale.—The *Edinburgh Review* in giving an account of the great improvements which the British are making in India, notices the system of works for irrigation. These works, it is said, are vast in extent and benefit. The Ganges canal, one the principal, has no less than 898½ miles of main channel, with 1852 miles of distributing water courses, besides many hundred miles of minor channels. It irrigates an area of 1,471,500 acres, and its beneficent waters will protect from the risk of famine a track of country containing a population of 6,500,000 souls. It is estimated that in the famine of 1860-1, 339,243,840 pounds of grain were grown by the irrigations which it afforded. Other canals are from 100 to 500 miles in length, and render fertile vast tracts of land that would otherwise remain almost barren wastes. In the Presidency of Madras nearly all the great rivers have been intersected by weirs, which retain for irrigation the flood of fructifying waters that would else flow out to sea. The increased production is reckoned by millions of pounds in value. These works were constructed at a great outlay, and are justly regarded as triumphs of engineering skill and wise statesmanship.