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NEWCASTLE FARMER.

VOL. II.—NO. I. COBOURG, AUGUST 1, 1847. TERMS.—2s. 6D. PER YEAR.

From the Genesee Farmer.

DO VARIETIES OF PLANTS HAVE A PERIOD OF NATURAL EXISTENCE, AND CEASE TO LIVE, LIKE INDIVIDUAL PLANTS AND ANIMALS?

This has become a question of great practical importance, as well as one of much scientific interest. A majority of Physiologists regard the existing Potato malady, which prevails so alarmingly in Ireland and Great Britain, as the effect mainly of constitutional weakness, in varieties of the plant, indicative of the approaching extinction of such varieties, on the face of the earth. The loss of vital energy has been increased, and hastened, it is believed, by the practice of an unnatural and injurious course of cultivation. Mr. ROGERS of Dublin, whose researches are published in the Mark-Lane Express, and received with respect and commendation, attributes the decay and wide-spread dissolution of potatoes, to the general custom of allowing them to germinate and form sprouts, of greater or less length, which are broken off before planting. The production of these germs, or rather their growth and waste, consumes a portion of the vital force, as well as nutritive elements of the tuber, which are utterly lost to the succeeding generation. In any single crop, the loss is of course not great; but carried through many successive generations, the injury can hardly fail of being very disastrous to the constitutional vigor of the emasculated, or mutilated race. As the disease prevails to some extent in our own immediate neighborhood, and has received attention and study at our hands last season, and the year before, we venture a few suggestions in addition to those made by the distinguished Irish chemist.

When the germ of a seed or tuber begins to organize the elements that surround it, and fully develope a new living being, nature provides it with a peculiar nitrogenous substance called *diastase*.—This substance is not unlike the fluid found in the stomachs of young animals, called gastric juice, or rennet, which aids in dissolving their food. It has the remarkable power of converting 2,000 times its weight of *insoluble starch* in potatoes, or the seeds of grain, into a *soluble gum*, to nourish, and build up the embryo germ into a perfect plant. After the first leaves are formed, nature having no farther use for diastase, it ceases to exist. To sprout a potato in a warm cellar or pit, and break off the sprout, is to waste this vital agent, so indispensable to the healthy nutrition of a new living being. Mr. Rogers has found by experience that potatoes are exempt from rot, if planted late in autumn, and never disturbed in the spring, but cultivated as if planted at the latter season.

It has long been a source of deep regret to us that the study of vegetable physiology, and of the diseases incident to cultivated plants, is generally so little ? lished, and so unpopular, in the farming community. Hence we write every sentence that relates to this science, in the fear of not being understood, and of exciting the disapprobation of many of our readers. But we must still crave their indulgence, while we pursue the discussion of this subject a little farther.

The premature development of the germs of potatoes is only *one*, and that perhaps the least injury, which thoughtless cultivators inflict on this invaluable plant. They omit to place within reach of its roots those *alkalies* and alkaline earths, without which no healthy and perfect tubers can be formed. According to the most reliable analysis an acre of potatoes, tops and roots, weighing 7,870 lbs. dried, require in their organization 193 lbs. of pure potash and soda.—Ashes and common salt will supply these elements; but others are also needed, which a little gypsum and bones will furnish.

Nothing is more certain than the fact that, to withhold from any being, whether vegetable or animal, its appropriate food, is to impair its constitution, and expose it in an eminent degree to become diseased and destroyed by injuries, whether by insects or other agents, that would fall harmless on well fed, strong, and healthy systems. A violation of the laws of organic life will be fatal, sooner or later, according to the extent of such violation, not only to particular beings, but to the *family* in which the injured individual is a connecting link between the past and the future. From this cause, many families in the highest class or genus of beings, that of man, have become extinct, although once endowed with great vital force. For wise purposes, God destroys families that, from generation to generation, consume more than they produce, in idleness, extravagance, and vice. This is doubtless done to make room for the expansion of families, distinguished alike for their industry and temperance, and the physical, moral, and intellectual strength which labour and virtue always confer. If we view human action in its proper light, it will be found impossible, in the order of Providence, for man to inflict injury upon others, even on a potato plant, greatly needed as it is by the poor, without bringing on himself or his offspring a greater injury.—But it is unnecessary for us to moralize on this subject; although morality and agriculture are more intimately connected than many suppose. Without any especial violation of natural laws, we have no doubt that varieties of plants as well as animals will, one day, cease to have any living representatives on the earth. The researches made in that department of Geology called Palœontology, which investigates fossil plants and animals, leave no room for doubt in regard to the extinction of many races, that have flourished for thousands of years on the globe. Hence, our able contemporary, Mr. Beecher, editor of the Indiana Farmer and Gardener, expresses a general truth too strongly when he says in a recent article,—"Any *one tree* may wear out; but a *variety* never." A family of plants, or variety of such family, may endure for indefinite ages. But in the ceaseless progress of time, an epoch will arrive when this family, like all the extinct families, from the recent mastodon downward, will have no living representative to perpetuate its lineage.

We cannot dismiss this subject without remarking that constitutional weakness in the potato plant can be remedied as well by propagation from the germs in the tuber, as from the seeds in the ball. The vital principle is as feeble, as much exhausted in the one organ of the being that forms embryos, as in the other. If vitality be lacking in the germ found in the potato or tuber, it cannot be more abundant in the seed. If plants germinated from seeds appear more healthy and vigorous than those from the tuber which gave the seeds, it is owing to extraneous circumstances, better care, keeping, less exposure, or some other incident. Unwise culture is only the predisposing cause of the potato rot; while the active agent exists unseen, and unappreciable in the atmosphere, like "the pestilence that walketh in darkness." We have good reason for the remark that, by supplying the crop with the precise ingredients required to form it, in its perfect state, and at the same time avoiding the bad practice of sprouting before planting, the peculiar malaria, insect, cryptogamic, or parasitic plant, or whatever else may complete the work of destruction, will pass harmless over the potato field.

From the Genesee Farmer.

WHEAT CULTURE.

The farmers of Monroe county sow annually about 72,000 acres in wheat, and harvest not far from 1,400,000 bushels of this most valuable grain. The breadth of land sown last year, according to the Census, was 72,635 acres; while the acres harvested were 68,383. These facts are interesting, because they show that wheat culture is on the increase in the Genesee country, there being 4,252 acres sown in one county in 1845 more than there were in the year previous.—The average yield is something less than 20 bushels per acre. That this is a very profitable crop may be safely inferred from the circumstance that about one-third of the plough land in Monroe county has constantly a wheat crop on it. The whole amount of land in meadow, pasture, and tillage, is 281,011 acres. Deduct only one-fifth of this for moist land permanently in meadows or pastures, and it leaves 224,809 acres of wheat land. Divide this sum by 3, and it will give but a fraction more than the number of acres annually sown with wheat in the county.

It is taxing the natural resources of the soil pretty severely to take from it a crop of wheat every third year, and send the grain out of the county to distant markets. Our researches, however, by chemical analysis, into the composition of the soil, and of the fragments of rocks, which being broken up into pebbles, and ground into powder, form the principal weight and substance of all soils, warrant us in saying that, with skilful management, this land may be cropped with wheat every third year without impairing its enduring productiveness. But what *is* skilful management? No general rule can be laid down which shall embrace the best practice applicable alike to all soils, under all conditions and circumstances.

The common sense, not only of the profession but of the community at large, has decided the point that no physician, no matter how well versed he may be in the sciences of anatomy, physiology and pathology, and in the properties of medicines, can make a general prescription that will apply to all constitutions and all diseases. He must see every patient, and learn all the facts and circumstances peculiar to each, before he can say what remedies are needed in each particular case. This common sense principle applies with equal force to the renovation, and lasting improvement of soils, by removing every defect that attaches to each man's farm. We make these observations as an apology for not attempting to prescribe rules of practice for the guidance of farmers in the details of wheat culture. Without an analysis, we can only deal in generalities.

It is obvious that by growing and sending off a farm, 500 or 1000 bushels of wheat per annum, the ingredients in the surface of the earth that combine with elements taken from the atmosphere to form the seeds of this plant, must gradually become less and less, without restitution from some source. The farmers of Monroe county annually make out of *something*, and export from their estates, the *matter* converted into wheat, equal to forty-eight millions of pounds. The whole crop of wheat at sixty pounds to the bushel, will weigh nearly one hundred millions of pounds. We do not regard it as impracticable for this county to produce and export annually that weight of matter in good wheat, for indefinite ages to come. Our reliance is on the elements of this bread forming plant, which nature has stored up in the sub-soil, drift, and solid rocks for hundreds of feet in thickness below the surface of the earth where the plough-share now runs. In many respects this mine of the minerals required in making good crops of wheat, is vastly superior to the resources of the Nile, which enable the people of Egypt not only to feed unnumbered millions at home, but to export at Rome and other cities in Europe and Asia, for thousands of years, an incalculable amount of breadstuffs. It is a profound and most interesting study to learn the best process for transforming Earth, Air, and Water, into bread, milk, meat, wool, and flax. It is the earth, aided by air and water, light, heat, and electricity, that furnishes all *manures*, whether vegetable, animal, or mineral. Hence it is that man ploughs the earth, harrows the earth, spades the earth, hoes the earth, and cultivates it in a thousand forms, to favour the organization of useful plants. But he fails to plough and mellow the soil deep enough to command the full advantage of its mineral elements. The plough passes over too much surface in a day, and only half so deep as is necessary to give the roots of plants a fair chance to expand, and draw nourishment from a considerable depth in the earth. We have recently taken up roots of common white beans, grown on a deep sandy loam, which extended two feet each way from the stem, and penetrated 18 inches deep into the soil. By placing the stem of a plant in the centre of a square whose sides are distant 2 feet from it, the area will be 16 feet, or 4 on all sides; and if we include a depth of 16 inches, the solid contents will be 24 cubic feet of soil to yield food to the growing plants. Now, limit the extension of the roots of the plant to one foot in all directions, to the depth of 9 inches, and you will have a surface of only 4 square feet, containing just *one-eighth part* of 24 cubic feet.—Every body knows that a hard, impervious soil is fatal to the growth of bountiful crops. Plough, then, a narrow furrow, move all the earth down eight inches, and let a sub-soil plough follow in the same tracks, to break up and pulverize the compact earth six or eight inches deeper. This will enable the oxygen and carbonic acid in the atmosphere, and other meteoric elements, to decompose the before insoluble silicates and phosphates of potash, soda, and lime; and permit the thirsty roots of starving plants to go down and drink in the nourishment which they most need. In this operation the sub-soil is not brought to the surface, but only broken up, and made friable and pervious to water, air, and roots, in all respects like the surface-soil.

How can one best increase the elements of wheat in soils where such elements are lacking?

This is a question of great practical moment. To show, in the first place, what one acre of land can do, where Science had supplied it with each element used by nature in forming this invaluable plant, so far as such elements were lacking in the soil, we ask the reader's attention to the following facts:

In part VIII. vol. 2, p. 206, Mr. Colman says: "It is well attested that a crop of wheat grown in Norfolk county in the same year (1845) produced 11 quarters, 2 bushels, 3 pecks per acre, that is to say, 90 bushels, 3 pecks per acre." The evidence of the truth of this statement being satisfactory to the Royal Agricultural Society, its Council directed Prof. Playfair to make a critical analysis of the soil that produced this remarkable crop. He did so, with the following result:—

Organic matter,	2.43
Hydrate water,	2.60*
Carbonic acid,	0.92
Silica,	81.26
Per oxide of Iron,	3.41
Lime,	1.28
Alumina,	3.58
Sulphuric acid,	0.09
Phosphoric acid,	0.38
Magnesia,	1.12
Potash,	0.80
Soda,	1.50
Chlorine,	a trace.
Loss on analysis,	0.63
Total,	100.00

In so small an amount as 100 grains, this soil shows an appreciable quantity of each element, (14 in number,) found in perfect wheat plants. And yet, more than four-fifths of the soil is nothing but silica, or pure flint sand. The proportion of silica is about the same as we find in our best wheat soils in Wheatland. It differs from them in containing more *soda, potash,* and *phosphoric acid;* while the amount of lime, magnesia, alumina, oxide of iron, and chlorine, correspond very exactly with the results of our own analyses. We have, however, never so small an amount of organic matter (vegetable mould) as 2½ per cent. The fact that over 90 bushels of wheat can be grown on an acre with so little organic matter in the surface soil as 2.43 per cent. is worthy of mature consideration by those that desire to prepare their land for producing large crops of wheat at the least expense. It is not *vegetable*, but *mineral* matter that our soils lack to give a large yield of plump wheat. An abundance of mould will increase the growth of *straw*, but not of *grain*. To promote

* Water not driven off at 212° of heat.

the growth of the latter, no one thing is so valuable, as a general rule, as that of *bones boiled to a powder in strong lye.* To this the addition of gypsum and common salt will be of great service. The phosphate of lime contained in bones is an indispensable ingredient in forming the seeds of the wheat plant. The gluten in this grain contains sulphur, which the sulphate of lime (gypsum,) will furnish. The plant also needs potash, soda magnesia, and chlorine; all of which the common salt, and ashes leached to obtain lye, will supply. The liquid excretions as well as the dung of animals abound in elements most useful in forming wheat. But an excess of manure will be ruinous to the crop. And *why* this is so, let us now consider. Suppose, for an experiment, one should make 2000 lbs. of ripe wheat, including both straw and grain, into a heap of manure for feeding a second crop of wheat plants. Let this manure be spread over the ground eight or ten inches deep, so that the plants would have to organize their tissues, seed, &c., from the appropriate elements contained in the manure. Could a large yield of good seeds be thus grown? We think not. Why not? Every thing the kernels of wheat need, as well as all that the stems and leaves require, would be present in great abundance. The difficulty is this: Nature designs that this plant shall derive from the *atmosphere,* through the medium of its roots and leaves, a large portion of the carbon, nitrogen, oxygen, and hydrogen, used in organizing its seed. Hence, to feed wheat plants with an excess of these elements in rotting manure, is to inflict a *surfeit* and *disease* upon the same. All organized beings, whether vegetable or animal, may be injured, more or less, by having an excess of nutritious matter thrown into their circulating systems. Wheat can endure this surfeit far less than corn, oats, or barley. There is a *natural limit* beyond which we cannot force any plant or animal, by the use of its most appropriate food. But in regard to wheat culture, we are far behind the maximum of product consistent with the highest profit. Something can be gained on most farms, by the droppings of domestic animals, applied directly to wheat fallows. They are not generally too rich for a dose of barn-yard manure; especially if it be well rotted, and contain an admixture of gypsum, salt, ashes, and lime. Don't spare the clover seed, the plaster, nor the leached ashes, where you wish to enrich your soil.

From the Farmer's Gazette.

BONES.

Of all the extraneous animal manures in use, bone-dust has, perhaps, been of the greatest importance to the farmer. Its use has extended the growth of green crops under circumstances, and in places where it otherwise could not have been attempted. The improvement of waste lands was often retarded, from the want of a sufficient supply of manure; but this difficulty was obviated by the introduction of bone manure. We can point to several districts where this circumstance has effected a very great change, not only in the general character of the husbandry of these districts, but it has enabled farmers to rear and feed cattle and sheep of the more valuable breeds, thus competing successfully with the farmers in other and older improved districts. A long experience of this manure has only tended to impress upon our mind, that whether as an auxiliary to, or as a substitute for farm-yard manure, it is at once the best and most permanently useful of any manure we are as yet acquainted with.

Bones are generally boiled before being broken for the farmer, in order to extract the fatty matter contained in them, and although this may at first sight appear to lessen their value, yet it has been proved that so far from being prejudicial, this previous boiling actually increases their value to the farmer, the boiled bones raising by far the best crops. The manner in which bones act in promoting vegetable growth, has been the source of much discussion among scientific men, some ascribing their fertilizing qualities to their inorganic constituents, whilst others attribute their effects to the organic matter contained in them. A ton of bones, according to Johnston, contains

	lbs.
Animal matter, . . .	746
Phosphates of lime, &c., .	1245
Carbonate of lime, &c., .	249
	2240

By Liebig, and after him by certain other writers, the action of bones is attributed to the phosphates contained in them, and this opinion is founded, among other things, upon the circumstance that bones have been found to exercise very little influence on vegetation, when the soil already contained a large amount of phosphate of lime; and we find that Mr. Hannam, in his Prize Report on the Effects of Special Manures, inserted in vol. 1, new series, of the "Journal of Agriculture," has drawn the conclusion from certain experiments made with burnt and unburnt bones, that "the inorganic constituents are the chief fertilizing agents in bones" (page 169); and again, "that the fertilizing properties of bones depend mainly on the inorganic matters contained in them" (page 171). That the inorganic constituents of bones do exercise a very great influence on plants cannot for a moment be doubted, when we consider the very important part which these constituents of bones occupy in certain vegetables; but it must also be borne in mind, that one-third of their composition is animal matter, containing from eight to ten times more ammonia than cow-dung, and judging from the well-known influence which ammonia exercises on vegetation, we cannot conceive that its presence is altogether useless, at the same time we cannot agree with the opinion advanced by some writers, that this animal matter is the sole or chief cause of the beneficial action of bones; for we think it impossible that the remaining two-thirds of their weight, being inorganic matter, should have no fertilizing influence. We rather think that the very superior action of bones is attributable to the large amount of both organic and inorganic matter contained in them, their effects being combined so as to produce results which neither the one part nor the other, taken singly, would produce. That bones should not act with full effect on soils previously containing a large amount of phosphate of lime, can be easily understood; for such soils were already supplied with abundance of this constituent of plants, and therefore a similar addition would not be productive of any good, simply because such an addition was not required, but this circumstance is by no means a convincing proof that the fertilizing properties of bones are attributable solely to the phosphates which they contain.

Bone-dust is used chiefly as a manure for raising turnips. When used alone, 16 bushels to the statute acre are a sufficient quantity; indeed a larger allowance than this does not produce a corresponding increase in the weight of the crop. We have used, annually, large quantities of bone-dust by itself, and applied at the rate of 16 bushels to the acre; but we consider that half this quantity of bones, along with a quantity of well prepared manure, equal to half a dunging, gives more satisfactory results than when the bones are applied alone. Bone-dust is sown either broadcast on the land when ready for drilling, or in shallow drills covered in the usual way, or by means of machines which deposit the manure either in a continuous line on the top of the drills, or at short intervals where the seed is also placed. It may also be put in by ordinary hand-dibbles, the seed being placed in the holes on the top of the manure; but in this case, as well as when applied by the drop-drill, the crop must be consumed by sheep folded on the ground, so that the whole of the land may be manured, in order to render it fit for the succeeding crops. It is of importance that the seed be placed in contact with the manure, so that a rapid braird may be insured; and the turnip seed is not injured by thus coming in contact with it. When sown in the bottom of a drill, however shallow it may be made, or when the manure is sown on the land before drilling, then the seed does not come uniformly into immediate contact with the manure, as it ought to do; and the braird is comparatively slow and unequal. All experienced turnip growers are aware of the importance of a rapid and equal braird, and therefore they will direct their attention to the effecting of this as far as possible in the application of the manure.

Bone-dust may be mixed with dry and

well-sifted coal or turf-ashes; and if lightly moistened with water, or better still, with liquid manure, and the heap turned over, the mass will soon become heated, and when this heat has subsided, it will be in a fit state for being applied either to the raising of turnips or as a top-dressing for pastures. Old grass lands will be found to be much benefitted by an application of bone manure, its effects being shown in the more rapid improvement of the stock depastured thereon, and, in the case of dairy stock, in the quantity and quality of the milk produced.

The description of land to which bone manure is best suited, is that of a light and dry nature. On heavy clay soils, it produces little effect; and even on light soils, *if wet*, it will prove a failure. Some years ago we applied bone-dust, at the rate of 18 bushels an acre, to a field of a light gravelly nature, only partially drained but otherwise well suited for bone manure; the result was (the season being very wet), that the turnip crop of that year was almost a complete failure, but the grain crop of next year, it being a dry summer, was exceedingly luxuriant, and the produce of very superior quality; indeed it is only on thorough-drained land that manure of any sort will prove efficacious.

From the Rochester Daily American.

THE HESSIAN FLY.

(Cecidomyia destructor.)

How to Prevent its Ravages.—The second generation of this most destructive insect makes its appearance in this latitude during the two last weeks in September. The fly does not live more than ten or twelve days. It sometimes hatches a little earlier, and at others a little later than the time above indicated. If there were no young wheat plants within reach of the perfect insect at the period of its maturity, on which to deposit its eggs, in September or the first week in October, all must perish without providing for the appearance of another generation in the spring. As all summer crops are out of the way in autumn, and winter rye is but little cultivated, and may be sown late even better than wheat, the Hessian fly can be wholly exterminated, by delaying to seed till after the 20th September. Late seeding should be practised by all wheat growers simultaneously, for the 20 acre field of one farmer sown before the 10th September, may susatin *larvæ* enough to come out perfect insects in April, or the first week in May, greatly to injure a thousand acres in the surrounding country. All insects, and especially the *tipulæ*, increase with wonderful rapidity. If a man should raise ten thousand wolves and let them out to destroy the sheep and cattle of the community, he would hardly do more injury to the public than to sow 50 acres in wheat *early*, in a town where the Hessian fly is known to exist, and thus raise countless millions of these destroyers of bread.

We are well aware that on many soils, late sown wheat suffers greatly by the heavings of frost, which separates the root of a small plant from the surrounding earth and destroys it. Under-draining and open water courses will obviate this difficulty. Admitting the full force of danger from winter-killing, still the loss from that cause is nothing when compared with that which results from multiplying Hessian flies in a wheat growing county a hundred fold. The frost usually injures only portions of a field; and even when the damage extends over its whole surface. it never spreads like winged insects over every man's grain within ten or twenty miles.

The subject is obviously one of great importance. Those that think of seeding early to avoid injury from frost, and to give their wheat a good start with numerous roots, before winter sets in, should remember that they need only nourish till spring, a few minute worms, to have their grain nearly destroyed in May and June by the vast numbers of the next generation.

Rolling with a heavy roller was tried by a large wheat grower in Wheatland last fall to kill the larvæ, by crushing them against the stem where they lie, but with little or no good result. This field was on the Genesee bottoms, and sown the first week in September, contrary to our advice. Its crop is now nearly destroyed by insects, and will give to Monroe county far more Hessian flies the coming autumn than is desirable.

It is not a bad practice to sow a land early through a fallow that all the insects in the neighborhood may come and deposit their nits, which should be ploughed deep into the earth where not one will ever come to maturity. After this the field can be seeded in the usual way. No application to the seed sown will have the least effect to keep off the fly. In the spring, it will deposit its ova on the leaves of the oats, barley, and spring wheat, as well as on the winter varieties of the latter plant. Hence it is much more difficult to prevent propagation in spring than in autumn.

Burning the stubble after harvest, has been recommended and practiced to some extent. This can seldom be done without destroying the young clover which the farmer has on the ground. No skilful wheat grower thinks of omitting to seed often with this renovator of the soil, aided, as it should be with a coat of gypsum, lime, ashes and salt. Where the land is not seeded, or the clover has come badly, burning the stubble will be advantageous in more ways than one.

To escape the ravages of the Cecidomyia *destructor*, for it is indeed a *destroyer* without a parallel among the insect depredators upon the fruits of rural industry, we urge upon the wheat growers of Western New York, the propriety of delaying to seed till after the 20th September.

It is worthy of remark in this connection, that Providence has provided in this country no fewer than four other insects that pray on the larvæ of the imported Hessian fly. The world is much indebted to Mr. Herrick for information on this subject. The following is an abridgement of his remarks on the parasites of the Hessian fly made by Dr. Fitch:

"When its eggs are layed upon the wheat leaves they are visited by an exceedingly minute four winged fly, (a species of *Platygaster*,) which punctures the egg and deposites in it four or six eggs of its own; the Hessian fly worm hatches, grows, and passes into its flax seed state with these internal foes feeding upon it: it now dies, and its distroyers in due time escape from the flax seed shell. Three other minute four winged flies, or bees as they would be called in common language, destroy the fly when in its flax seed state. The most common of these, by far, is Say's *Ceraphron destructor*. Alighting upon the wheat stalks, instinct informs them precisely where one of these flax seeds lies concealed. They thereupon "sting" through the sheath of the stalk, and into the body of the worm, placing an egg therein, which hatches to a maggot, lives upon and devours the worm. Such are the means which nature has provided for preventing this pest from becoming unduly multiplied. And so efficient and inveterate are these foes, that more than nine-tenths of all the Hessian fly larvæ that have come into existence, are probably destroyed by them, Mr. Herrick thinks, and we have strong reasons for believing that his estimate is within the truth."

This we regard as an over estimate of the proportion of the larvæ of the Hessian fly destroyed by parasites. That a large number are thus disposed of there can be no doubt; but it will not do to depend on the multiplication of one kind of insects to extirpate another. The farmers' wheat and the mechanics' bread will be the first to fail, unless cultivated intellect shall protect the food of man

ON THE PREPARATION OF COMPOSTS FOR TOP-DRESSING LAND.

Dung from stables, byres, pig-styes, and other places about a farm-court, I mean all dung made by beasts, and the refuge straw about the farm offices, can be very well managed in the open court-yard, and it is profitably managed, and properly attended to, by the greater number of our best Farmers. There are many farms where the straw is all made into manure on the premises, that it would be a difficult process to rot the straw under cover. Where dung is made in the open air, have all sides of the dung-hill walled in, and the upper surface only exposed. I have never discovered any loss in making dung in this manner; be it kept in mind, that no rubbish of any kind should be admitted

into the straw-yard dung hill, except such articles as need a process of fermentation to reduce their parts to the consistence of manure. All composts should be manufactured, and also used in a state bordering on dryness, and that every available substance that can be gathered about, or near to farm buildings, should be brought to the compost heap, and to have such compost heap properly under control, it is indispensably necessary to have it under cover; the cover should be an erection of the shed form, having a side wall shutting in the stormy side completely, the lee-side to be supported by posts or pillars, the two ends open, for the entering or departing of a cart, with a substantial span roof over all, to keep the inside of the erection dry, and fit for the use it has to serve. The compost shed should not be less than 12 feet wide within—15 or 18 feet might answer still better—and of a height of side wall to allow a loaded cart to pass freely under; the length should range to answer the size of farm, or the quantity of compost required.

It might be convenient to have the poultry-roost connected with this erection for the sake of the dung of the fowls; also, the privies may be so attached as to discharge their contents adjoining to the compost heap. All ashes from the fires and furnaces of the farm to be brought to the shed daily; and all sweepings from the houses and court-yard; every particle of lime, rubbish, sand, sawdust, soot, cleanings of gutters, even roads scrapings, where easily got at, and every other article that may be converted into profitable compost. It is most astonishing what can be accumulated from the gatherings of a well-conducted court of farm offices. If possible, let all things be brought to the shed in as dry a state as they can be got, especially what may be brought in from road sides, the back of hedges, turf-walls and such like articles; for the drier they can be got in, their mixing, and after-working, will be easier managed. After a considerable quantity of stuff is collected in the shed, some wet day, when it may be more to your profit to have the horses in the stable, and the men employed within doors, get the spades and shovels, and three-pronged forks, put to work, and turn the whole contents two or three times, then put all through a riddle, or screen of about an inch mesh, and store the heap from one end and along the back wall of the shed, sloping it well up to the wall; the base, or bottom of the heap, may occupy two-thirds of the breadth of the floor, leaving a sufficient passage along the shed—the riddlings or screenings to be thrown back to be mixed among the stuff that is coming in betimes. It is not supposed that the shed is to be filled at once, or in a few weeks, but it may be daily, or weekly, get additions, and the prepared compost may lie uninjured till the shed is full, or till a field be ready for top-dressing, and a fit *tid* to put it on. Sometimes it will be requisite to screen the compost over again, through a finer riddle, especially in cases when you mix in guano, bone-dust, salt, nitrate of soda, or such-like. I should have mentioned before this, that all refuse brushwood, small spray, old shoes, and any other thing that needs reducing by fire, should be burned by times, and their ashes added to the compost heap. A compost prepared in this way can be used as soon as it is made, or it may lie dry for years if you please without losing its essential properties.—*Ploughman, in Ayrshire Agriculturist.*

From the Albany Cultivator.

HOEING OR CULTIVATING CROPS.

The chief or primary object in hoeing crops is to increase the quantity and improve the quality of the produce. To this end, various means are adopted. A point of the first consequence, is the eradication of weeds and all plants excepting those which it is wished to cultivate. The necessity of destroying weeds, arises from several causes. Their growth interferes with and injures the crop in various ways. They exhaust the soil, more or less, of the elements which constitute the food of cultivated plants; they especially abstract the moisture of the soil, making a constant drain upon it in this respect, from the first moment of their existence.

It is of great importance that weeds should be killed while they are young. If killed at this stage, the injury they occasion is comparatively trifling, and the expense incurred in the operation is but little, compared with what would be required to effect the object when they are more fully grown. The brush of a hoe or the scratch of a light harrow, will effectually kill a weed at the time it appears above ground, whereas, the growth of a few weeks would give it such a hold on the soil that it would withstand considerable force, and to eradicate it would require ten times the labor which would have effected the object in the first instance. Besides, if weeds are allowed to reach a large size, their roots become more or less mingled and entwined with the roots of the cultivated plants, so that in pulling up the weeds, the crop is liable to be injured.

Some people seem not to be aware of the serious injury which the introduction of pernicious plants is to the soil. Some of the rich "corn land" of the western states, have already suffered a great deterioration from this cause. The negligent and slovenly manner in which the corn is too frequently "tended," has filled the soil with every pest which will grow on it, The foul growth is in many cases suffered to increase every year, till there seems to be between the weeds and corn a great strife for the mastery; and though the corn, on some of the most fertile fields, grows twelve to fifteen feet high, or more, it scarcely exceeds the weeds in height or strength, and judging from the liberal *border* around the fields, of which the weeds seems to have gained full possession, and from their frequent appearance among the crop, the prospect seems fair for the day being ultimately carried by them.

Stirring the ground, to a certain extent, is beneficial to crops, aside from the effect of keeping down the weeds. By keeping the soil loose, the roots of plants more readily extend themselves; the soil is rendered more permeable to the sun, by which a more congenial temperature is gained for plants; it facilitates the absorption of dews, which bring down ammonia and fertilizing elements from the atmosphere; and it exposes the soil more to the action of the air, by which the decomposition and combination of the various elements of vegetable food is effected. The action of the oxygen of the atmosphere is thought to be particularly beneficial on clays, and slaty and granitic soil. The combination of the oxygen with the iron, and its action on the other mineral elements, produces a disintegration of the stony materials, and leaves the soil more friable. The admission of oxygen into the soil, may likewise be useful by its entering into combination with the carbon of the soil, and thus forming carbonic acid, the food of plants.

On some soils, especially those of a tenacious nature, a hard crust frequently forms, by which heat and air are much excluded. Some simple implement, as a harrow or cultivator, should be used with sufficient frequency to prevent the crust from forming. As the growth of plants increases, their roots are more extended, and it is not proper to use tools which will mutilate and destroy the roots.

It is important that plants should be duly exposed to the influence of light and air. It is only under the influence of light that they are able to digest their food. They take in carbonic acid and water, but by the aid of light, they decompose the carbonic acid, giving off the oxygen, and retaining the carbon to form their tissues.* This influence of light is quite surprising. If a plant is placed in a dark room, and a ray of light is admitted on one side, the ends of the branches are soon directed towards the light, and the plant seems to struggle to reach that part of the room where the light is strongest and its influence most direct. If a small tree be planted under or near a large one, or on the side of a forest, it soon begins to lean to the side nearest to the light, and will continue to grow in this direction, putting out but few or no branches on the side most affected by the shade of other trees.

* Carbonic acid consists of carbon and oxygen; 6 lbs. of carbon and 16 lbs. of oxygen forming 22 lbs. of carbonic acid.—*Johnston.*

These facts are cited to show the necessity of giving plants sufficient room. If they are crowded too thickly together, the sun is too much excluded from the soil, and from the want of sufficient circulation of air, the plants are less healthy, being more subject to blight; and the blight is prevented from coming in contact with the stems and leaves in such a manner that the sap can be properly elaborated. Where plants stand so thick that the light strikes them mostly on the tops, they are drawn into slender stalks, having but little substance.

But in cedar and pine forests, where it is sometimes desired that the trees, in order to make timber for certain purposes, may attain a great height in proportion to their circumference, a dense growth is an advantage.

From Bell's Life in London.

THE ENGLISH RACE HORSE

Is an animal of which all classes of our countrymen are justly proud; but at the same time it may be doubted whether the great and numerous prizes now offered to speed, without much regard to stoutness do not produce results injurious to the country; and I wish to call the attention of our readers, who comprise most of the sporting public,) to the present state of our horses. The Arabian blood, by its mixture with ours has long since attained to a wonderful degree of perfection; and racing having been at an early period enrolled among our national amusements, the attention of the most wealthy among us has been directed to race horses, and to the breeding of them with the utmost possible speed. Formerly horses had to run four miles at high weights; now it is a course of a mile and a half, with light weights, to try to approximate to the speed of steam. One attempt has been made to stem the torrent, by the race instituted some years ago by the Duke of Portland, but it was against the fashion, and it was given up; and if any one objects that such a race is more cruel and more distressing to horses than a short one, I say he can know but little of racing, horses differ much more in stoutness than in speed; and as you lengthen the course you do away with the keenness of the contest, which is what causes the distress, and this in fact is the very reason why the B. C. [Beacon course, which is 4 miles, 1 furlong and 137 yard round,] is unpopular. A leggy animal, with a long stride is worth more now than he was in the days of our fathers; this I say is entirely wrong and mischievous. Then, as to another point—no regard is paid to sound and lasting legs and feet for mares or stallions; these points would be carefully looked to for a riding horse, but when it comes to breeding a more valuable animal, the breeder says, 'Oh, the colt will come out well at two years old, and win me a few good stakes, and that will do, never mind his legs.' Then again, what carelessness there is as to size and power, especially as to the dam; on these points, stoutness, soundness, and power, I say, most wonderful indifference is daily shown, as any man will see who looks through thorough-bred studs, in nine cases out of ten. Let him go to Tattersall's and almost all the thorough-breds he sees sold will be thin long-legged colts, (most of the chestnuts,) with slight and upright pasterns, and small round fetlocks. What on earth are they good for? a Welsh pony would kill three or four of them in a costermonger's cart. Then we expect to sell our thorough-breds to foreigners, but they will not buy small lame cats; they buy nothing but the very best sort we have. In short, whether for use at home, or as merchandise to go abroad, we ought to be more particular in the shape, size, and soundness of sires and dams of horses, than the Short-Horn breeders are as to their cattle; and whereas, most of us, on the contrary, trust to blood, and think of little else. I have addressed you long ago on this subject, but I do so again because I think it one of great and national importance, and because I see the evil growing daily. There would be much less expense and much less disappointment, if one colt was bred from a sire and dam of true form and soundness, than if six were bred at random, with the hope of one turning up a trump. Again, it is not near so easy now as it used to be to buy a good, strong, young hunter. A steam is in some measure the cause of this, for an old fashioned, compact, active, coaching mare, when her work was over, bred a good hunter by a lengthy thorough-bred horse: now, the demand for the machiner is nearly gone, and the animal is very scarce. In the want, then, of this middle class, from which to recruit the patrician blood of our Sultans, &c., we have an additional motive to be careful about strength and size in the latter. I have been bitten by thorough-breds when younger, but I think of them now, that though a large and powerful thorough-bred is the finest form of horse, bring me them at random, and I will engage three out of four will be irredeemable rips.

From the Farmers' Gazette.

ON THE UTILITY AND CONSTRUCTION OF A LIQUID MANURE TANK.

Sir,—As much has been already said and written on the above subject, both by scientific and practical agriculturists, little has been left for to say—at least, nothing new; but, under the present appalling circumstances, and considering the rather precarious situation in which the generality of Irish farmers are placed, and not only they, but the whole community at large, now at this important crisis, in my humble opinion, this subject cannot be too often brought under the farmer's notice.

Every week I see queries put to you about manure. The whole "cry out" with the farmer is, I want manure. Now this, to a certain extent, is his own fault; if he would but use a little more economy than he is usually wont to do, about his farm-steading, by putting himself to the *trouble* and *expense* of constructing a liquid manure tank, in some convenient and appropriate place near the cow-sheds, kitchen, scullery, &c., then, and not till then, would the farmer have plenty of manure; and when this is done, take my word for it, we will not hear of such a want of manure any more. But some farmers are so lazy and niggardly, that they would not put themselves to the trouble and expense of constructing such reservoirs for the reception and accumulation of the most valuable manure about the farm-house. Few farmers understand the value of being out about the dung-heap, cow-sheds, stable, &c., doing some useful and, perhaps, at the same time, all important job.

Some of those persons I am about addressing may say talk is cheap, but pray where are we to get the money to do all this? Now this is the very point I wish to come at, and this is just what I want particularly to remark, the cheapness with which such necessary requisites can be constructed, though not of the nicest description, still they are quite nice enough for their contents. It is not beauty, in all cases, that constitutes good farming. I do not intend to ridicule regularity and neatness about the farm-house, or handy or nice implements, but where usefulness is sacrificed to ostentation is the principle I wish to eradicate.

The plan I am about to lay before you is one which I adopted myself before ever I heard of a tank, and one which I have found to answer the purpose just as well as one at a cost five times as great. After having sunk a hole, of whatever size you require, which, of course, will be regulated according to the facility you have for making the manure in question, commence and cover the bottom with rough flags or bricks, also the sides in the same manner. When you have this done, get tough clay and *puddle* it all over, both bottom and sides, to the depth of about two inches; then cover the whole neatly over with slates or scantling boards, and at the same time taking care to joint it well at the bottom and corners, to prevent the liquid from percolating through. If the tank is sunk in a stiff, tenacious clay, it would be unnecessary to interline it with stones or flags, merely to puddle and cover it with slates or boards. After the tank is completed, the next thing to look into is the sewer or channel to convey the liquid to the reservoir, which can easily be constructed in the ordinary way. A cover is necessary to prevent fowl or other domestic animals from falling into it. All this can be performed by any handy and willing farmer or his son, and at little or no expense. Even suppose he should go to the expense of a few shillings, it will, in a very short time,

amply repay him, and, at the same time, give a pleasing aspect to his farm-steading, which, before, was one continued sheet of urine, water, puddle, &c. No soap-suds, cleanings of greasy or oily vessels, &c., should be allowed to go to waste as formerly; all, in fact, which does not go into the pigs trough, out of the kitchen, should be carefully collected and thrown into the tank.

Having gone so far with the subject, if not trespassing too far upon the pages of your invaluable *Gazette*, and also the patience of your readers, allow me to say a few words on the uses of this so highly-prized liquid. I need scarcely remark that it is a powerful stimulant to grass lands. I have known instances of grass being cut four times, where liquid manure was regularly applied after each cutting. The last crop was off in the beginning of November, and was from 15 to 18 inches in length; it can also be beneficially applied where turnips, cabbages, rape, &c., are grown. But to whatever crop it may be applied, be very cautious in using it in dry weather without diluting it with water, as it would in that case prove injurious rather than beneficial.

It also acts as a powerful decomposer when thrown over the dung-heap, or any other place where speedy fermentation is wanted. It likewise forms a useful ingredient in compost heaps, besides a great many other purposes, which, at present, would exceed the limits I had prescribed when commencing this letter. I shall, therefore, conclude by saying, that I have used this manure in all the different ways mentioned, and I have also seen its benefits; and last, though not least, realized the profits derivable from such a system, and am fully convinced that, if it is given a fair trial, it will never be abandoned; but, on the contrary, adopted by every careful, industrious, and persevering farmer. Yours, &c.,

April 23, 1847. ALPHA.

USE OF LIME AS A MANURE IN NEW JERSEY.—About from 1825 to '30, the farmers of the region began to learn that time would change the soil of our naturally sterile hills, to the strongest kind of corn and wheat land; and indeed no one but an eye witness could believe the change that it has already wrought. Before we were aware of its power, some applied too much, and injured the land for two or three years; but by deep plowing and bringing up and mixing the clay with the soil, and growing clover, to equalize the proportion of vegetable matter with the lime, &c., a powerful wheat soil was formed. Those who say that every soil has lime enough naturally, should visit Morris, there they may see fields of thirty or fifty acres, on which nothing grows but what we call "poverty grass," and sassafras bushes, and in one adjoining, as noble crops of corn, wheat, or oats, as any reasonable man would wish to see. And this too, is so certainly attributable to the lime, that all now use it, even the old Germans, whose prejudices have deprived them to its beneficial effects 20 years or more.

Any quantity of lime can be obtained at the kilns, for six to eight cents a bushel, every bushel of which, when slaked, will average double the quantity. I find by careful experiment, that the best manner of applying it, and in which it has the most immediate effect, is to place it in heaps of from 100 to 200 bushels, as may be most convenient, and leave it to pulverize by the action of the air and rain for two or three months. By this time it will be become a carbonate, and is fit to apply to any crop, at the rate of 20 to 50 bushels per acre, or rather, double that quantity, it being slaked. Of course the quality of the soil must regulate the quantity; a good soil bearing a larger quantity than a poor one.

I have seen lime in the above condition, put upon corn hills before the corn was up, (a quart to the hill,) and strange as it may seem to those unacquainted with lime, except in its caustic state, with marked good effect, while the gaping crowd predicted ruin to the crop, not knowing the difference between it and fresh lime.

I have tried it fresh from the kiln, (a light dressing of 30 bushels to the acre,) harrowing it in, and this trifle, on account of its caustic property, caused a difference for the worse that could be seen a mile—other corn unlimed, standing side by side. But its good effect *never* fails when applied in the former state.

You may take the poorest soil in New Jersey, and in three years, (by an interval of one year between two dressings of forty bushels to the acre,) can make it produce good corn. The manner is, first apply one dressing, and plough it in well and deeply; then plant corn and till it thoroughly, and the crop will be from 30 to 40 bushels of ears to the acre. The next April we sow oats, two bushels to the acre, and apply the other dressing of lime on the surface, harrowing in thoroughly with the oats, and "seeding down" with one harrowing, after sowing the clover. We think six quarts of clover-seed sufficient to the acre.

The oats, with this treatment, are generally a fair average crop, and the clover, soon after the oats are taken off completely fills the stubble, and the following summer should not be pastured, except by hogs after it is in bloom. Thus a great quantity of vegetable matter will be upon the surface for the next years' crop, which will be all you can wish. One important item I have omitted, which is 1½ bushel gypsum, sown broad-cast to the acre, on the clover. This should be done in March.

Morris is rich in iron ore, which in both quantity and quality is unsurpassed. One mine of great value, is 300 feet deep, which, in a comparatively new country, is a deep hole. There is no doubt, I think, that the mines of this country could supply all the furnaces and forges in the United States. JAMES HAINES, *Chester, N. J. Feb.* 1847.

Newcastle Farmer.

COBOURG, AUGUST 1, 1847.

Should scientific enquiries be pursued in reference to Agriculture, and the results be in the same ratio with those already obtained during the past few years, it will not be long ere the term "infertile" becomes obsolete, and the opinions now held concerning *worn out lands*, as they are usually denominated (after having been in a state of cultivation) shall be considered merely as popular errors of bygone days of ignorance. And we see no reason why such advances should not be made, since such wonders have been accomplished in almost every other department, even to the compelling the potent agency of one of the invisible and most subtle of fluids to subserve our interests, endowing it (if not with the gift of speech) with an organ for communicating ideas, at distances the most conceivably remote.

We believe it will eventually be found that there is no description of soil but may be made capable of producing food for both man and beast, save such as abound in so large a portion of *mineral* or metallic ingredients, as to render the attempt to neutralise or correct such an abundance of material, a work either of too much labour or expense, alike abortive and unremunerative.

It is true that some soils are easier reclaimable than others, but there can scarcely be a doubt that many, hitherto considered as worthless, will hereafter occupy a prominent place in agriculture.

Man, in exercising his prerogative to "replenish the earth and subdue it," is desirous to make all things subservient to his will and pleasure. He strips the earth of its natural verdure and products, invades ruthlessly the primeval woods and forests, destroys alike the domicile of the insect, the lair of the beast, and the eyry of the bird; and bids occupy the site, plants of every variety necessary for his wants and gratification, of a form and character totally dissimilar to the former occupants of the soil, and requiring a mode of culture and supply of food adapted to their peculiar character.

Coarse sands and gravel, where found in a state of nature, are usually the most defective in organic substances of any description except indeed, that from their situation or climate they may abound in moisture, but under such circumstances they generally receive the wash from more elevated lands, bringing down with it no inconsiderable of the finer particles of earth mixed with many seeds, and much decomposed organic matter, by which means they are capable of growing plants from such deposit of seeds as may flourish in a situation congenial to their nature, to the exclusion probably of many others incapable of vegetation under the same circumstances.

Now of lands which have been under culture and become *exhausted*, we must consider what is implied in that term "that they cannot be made remunerative by culture;" but we believe there are, there can be, but few spots (in this country at least) which can by any means be *laid dry*, which will not become productive.

All plants must necessarily take something, as their food, from the constituent parts of the soil, beside what they receive from the atmosphere, which undoubtedly furnishes a large proportion.

We need scarcely argue that if we take a ton or a ton and a half of hay from the meadow, or an equal or greater quantity of straw* from the arable land, over and above the weight of the grain itself, say 25 bushels of wheat equal to 1500 lbs., or barley or oats in their several proportions, that we are not robbing the land of something, which something must be returned to the soil in some form or other, before it can be again *equally* productive.

Professor Thaer says of wheat, that for every 100 parts of nourishment necessary for that plant, contained in the soil, 40 is carried off by the crop. This may be hypothetical as to exact quantity, but as a general principle it is undeniable that a large proportion of the amount removed in the crop is furnished by the soil.

That land which is unproductive for one crop, will raise one of a different description, is owing to the varied proportions of the different ingredients entering into the formation of different plants,—thus evidencing the necessity for a rotation of crops, and indicating the positive need of restoratives in the form of manures to meet the deficiency; so the barren soil on the coast of Peru, which does not contain a single particle of organic matter, consisting only of clay and sand without the slightest appearance of vegetation, is made (by the application of guano) to raise the finest crops of Indian corn, plainly showing that such manure contains within itself all the ingredients of which the soil is deficient, for the sustenance of that prolific and valuable cereal. If then, land which will not grow so much as weeds, can thus be made remunerative, we ought to hear less about *worn out* and *exhausted* soils; it is ignorance, or bad management, or both, which is the farmer's bane, leaving out of the question (of course) unfavourable seasons, over which he can have no control.

Many facts the observant farmer has arrived at by experience, without the aid of science, by which he has been enabled to correct some errors, and avoid some fatal mistakes; but if he would make the best use of all his appliances, it will be necessary that he should become acquainted with the constituent parts of each plant and the proportion of the different ingredients entering into their formation, and also the capability of his land to furnish such ingredients, irrespective of the manure intended to be applied, he will then be able to arrive at the description of manure most beneficial, and the amount needed for the crop.

Manure may be defined to be any substance necessary for the food of a plant, of which the soil on which such plant is grown is naturally deficient; or, any matter necessary to enter into combination with substances already contained in the soil, rendering them better fitted to enter into the organization of the plant.

The light sandy, or coarse gravelly soils, are usually denominated hungry soils, not returning a produce at all equal to the amount of manure laid upon them. And this is easily accounted for, by the consideration of their total unfitness (naturally) for the production of grain, especially in a climate where the heat during the summer is intense, the amount of rain which falls comparatively small, and from their texture so pervious to the sun's rays, that all their moisture is quickly lost by evaporation, and the plant withers at its source. Now to supply such a soil with a large proportion of nearly undecomposed barn-yard manure is an error, in more ways than one; first, it renders the soil still less compact than before, and consequently more liable to the operation of the sun and hot winds of a sultry season. Again, long strawy undecomposed matter is "in fact" no manure at all, it neither converts other elements of the soil into nutritious matter, nor is its presence needed, since it could only furnish an additional amount of one ingredient, "silica," for the formation of the straw, of which material the soil is already in excess.

A superabundance of any one element in the soil, however good in itself, will not promote the intention of the agriculturist; it is the just combination of the various ingredients which ensures success. There may be in the soil an excess of the richest material, which will prove equally fatal to successful production, as a vast deficiency of the same matter; true, the plant may be strong, vigorous, beautiful, full of sap, and apparently promising well; but what is the result? an abundance of straw, bearing a head which rarely arrives at maturity.

It is stated by one writer, that the best and most productive soil is that in which "the decomposible vegetable or animal matter does not exceed one-fourth of the weight of the earthy constituents;" and we should be disposed to rate this as a high estimate, and that such an amount is unnecessary for most crops, supposing access to be had to one or other of the fertilizing substances now in use as manures.

We find it impossible to close this subject without exceeding our ordinary limits, and shall therefore defer it until our next number, contenting ourselves for the present by stating our belief—

That sterility or barrenness can result only from the absence of certain materials, which *may* (in most instances) be supplied, or from the excess of other component parts, which *can* be either modified or removed:

That an abundance of material is already in existence for the supply of vegetable life to any extent, and that no continued creative energy is employed in such productions:

That those materials are within the reach of every agriculturist, and that science is leading the way to their attainment:

That a knowledge of the due and proper admixture and proportion of such materials, for the various crops, is necessary to successful cultivation of the soil.

Wheat harvest has commenced; there are some few excellent crops, but we fear they are the exception and not the rule, and we doubt whether the result generally will not be much below an average crop. Barley, which was not up until after the cold rains ceased, is looking well. Oats will be a fair crop, but there are but few really good fields of Spring wheat. We know of none at all equal to a field belonging to M. Cruso, Esq., on land reputed worn out this twenty-five years past.

* The weight of straw compared with bushels of grain varies from 100 to 200 lbs. per bushel.

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