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 18 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.