

which they are composed and the substances which are mixed among them.

Clay soils consist largely of alumina, that is, having such an abundance of clay that it is called the "clay metal." Clay itself is a compound of silica (sand), acid, alumina and water. It also contains potash, soda and lime. It forms a compact, fatty earth, soft to the touch, sticky in a moist state and very hard when dry.

Chalky soils have been formed from rocks in which lime was abundant.

Peaty soils need no description, although they differ very widely.

Alluvial soils are formed by deposits of sand, loam and gravel, brought down by rivers. They are often very rich, being composed of a multitude of thin layers of mud, in which all sorts of fertilizing material is mixed.

Loamy soils contain a large portion of decayed matter, humus or muck, as we call it. Woody fibre in a state of decay acquires a dark color, and ultimately becomes mould. Loam contains a variety of ingredients, as clay, sand, lime, in addition to humus. It is a loose, friable description of soil, easy of cultivation, and as to texture, is the most desirable description of land for purposes of tillage.

Soils have the singular property of absorbing, retaining and parting with the elements of fertility without materially altering their weight, bulk or texture. They are fertile or barren, according as they abound or are deficient in the substances which enter into the composition of plants.

#### Causes of Seed Failures.

The following are some of the principal causes of failure of seeds: 1. Some cultivators, through ignorance or forgetfulness of the fact that the products of a garden, being natives of various soils and climates, require peculiar management, deposit their seeds in the ground at an improper season. The early and most hardy species and varieties should not be planted until the ground can be brought into good condition, as some species of plants that in an advanced stage of growth will stand a hard winter, are often cut off by a very slight frost while young, especially if exposed to the sun after a frosty night. 2. Some species of seeds, such as beans, beet, cabbage, lettuce, radish, salsify, turnip, etc., being from their nature apt to vegetate quickly, are often destroyed while germinating, through variability of the weather, and some are liable to be devoured by insects in forty-eight hours after they are sown, and before a plant is seen above ground, unless a suitable remedy is applied in time to annoy the insects. 3. Some species, as carrot, celery, leek, onion, parsley, parsnip, spinach, etc., being naturally of tardy growth, taking (in unfavorable seasons) from two to three or four weeks to vegetate, are apt to perish through incrustation of the soil, or other untoward and unaccountable circumstances which cannot always be controlled. 4. The failures often occur through seeds being deposited too deeply in the ground, or left to near the surface. Sometimes, for want of sufficiency of seed in a given spot, solitary plants will perish, they not having sufficient strength to open the pores of the earth, and very frequently injudicious management in manuring and preparing the soil will cause defect.

#### Couch Grasses.

Mr. Mechi lately sent a note to the *Agricultural Gazette*, on the subject of couch grass. A correspondent of the same journal points out that Mr. Mechi does not give the genuine or specific name of the grass commented upon, and goes on thus:—

Now as on our own farm we have gathered the following grasses to which the common name of couch has been applied, it will be seen how necessary it is to understand the real name of the plant intended, though we fancy we hear some people say—perhaps Mr. Mechi himself—"Couch, couch! bless my heart, everybody knows what couch is!"

TABLE OF COUCH GRASSES.

Botanical Name.	Common or Rustic Name.	Remarks.
1. <i>Triticum repens</i>	Common couch	The usual species in heavy soils.
2. <i>Agrostis alba</i>	Florin couch or common squitch	The usual species in light soils.
3. <i>Agrostis alba</i> , var. <i>stolonifera</i>	Common couch of light soils	The usual species in light soils.
4. <i>Holcus mollis</i>	A strong couch grass in sands	Very long and coarse in sandy soils.
5. <i>Poa compressa</i>	A fine couch or squitch in brashy soils	A small wiry couch in brashes.
6. <i>Athenatherum aviculare</i> , var. <i>bulbosum</i>	Onion couch	Bulbous couch.
7. <i>Alopecurus agrestis</i>	Black squitch	Fibrous rooted.

Now it will be seen from this that no less than seven sorts of grass to which the name couch is commonly given, occur

on a single farm, but as we have before described some of these at length, we shall merely refer to the paper, reproducing two drawings in order to show the great differences in the forms of couch. Here the differences in form are just those that pertain to the two-rowed spike of flowers in wheat, and the diffused flowering panicle as in oats. Now, if we take it for granted that the couch referred to may be one of the two first, we shall find that the foliage of the *Triticum repens*, when bruised, has a disagreeable smell, and the whole herbage is full of bitter extractive and saline matter, properties which probably render it medicinal to dogs. Its culms are hard, brittle, and highly indigestible, and besides these facts, it is a grass exceedingly liable to mildew. There can then be no wonder that



TRITICUM REPENS (COUCH.)

Sinclair should give the preference to the roots for feeding purposes. He says:—"The roots contain a large proportion of nutritive matter; they are esteemed abroad for feeding horses. At Naples they are collected in large quantities for this purpose, and sent to market." The nature of the *Agrostis stolonifera* is altogether different from the above. It is not remarkable for a strong smell or any objectionable flavor, its herbage is sweet, and is relished both by sheep and cattle. Sinclair says:—"The produce of Florin, *Agrostis stolonifera*, var. *latifolia*, may



AGROSTIS STOLONIFERA.

be compared with that of the Cock's-foot grass (*Dactylis glomerata*), Meadow Fescue (*Festuca pratensis*), and the Meadow Foxtail (*Alopecurus pratensis*), when it will appear inferior to the two former species, and superior to the latter." This is no mean praise of its feeding properties, and as it occurs in the water meadow, it is then Mr.

Bravender speaks of it as follows:—" *Agrostis stolonifera latifolia*, broad-leaved creeping bent grass or Florin. The root of this grass is a troublesome weed, and known as squitch. However, it appears to be an essential constituent, in a smaller proportion, of all fertile meadows, and is an excellent water meadow grass." From these notes, then, it appears to be important to note the species intended, and in the case referred to there is reason to believe that the *Agrostis* is intended; yet there should be no doubt upon the matter where for its habits, and properties are so distinctive; and perhaps in no other series of plants can there be found such great diversities, than those to which the name of couch is applied.

#### The Best Time to Manure Wheat.

Experience has proved that the best time to manure wheat is just before it begins its Spring growth. If those who have sowed wheat will apply to it at once one hundred and fifty pounds of sulphate of ammonia, or two hundred pounds of nitrate of soda, the product will be greatly increased. Within a week after the application, the color of the plant will be changed to a dark green, and it will give surprising evidence of thrifty growth. The sulphate of ammonia should be dissolved in warm water, and poured upon sufficient rotted stable manure or rich earth to absorb it. As soon as dry, it will be ready for application. The nitrate of soda is extremely soluble, and requires merely to be reduced to a fine state to prepare it for application. After the fertilizer is spread the wheat should be harrowed. This harrowing of wheat is equal to a working of corn. A few plants will be torn up, but not enough to do any injury worthy of consideration. After harrowing, the wheat should be rolled. This will press the torn plants back again in the soil, compacting the surface, and will prepare the ground for subsequent mowing.

Clover seed may be sown, four quarts to the acre, at the same time with the application of the fertilizer. On all clay soils, unless in a very dry season, it will be pretty sure of success, the young plants being stimulated by the fertilizer. After the wheat is cut, a bushel of plaster should be sowed to the acre, on the young clover.

Nitrate of soda costs four dollars per hundred pounds, and sulphate of ammonia seven dollars per hundred pounds, in market. If clover seed be not sown on the wheat, the increase of the crop of crab-grass hay after the wheat will considerably more than repay the cost of the fertilizer. Any fertilizer containing an equal amount of ammonia with the substance mentioned, will answer an equally good purpose.—*Cor. Rural Carolinian.*

#### Land Measurement.

Says a *Southern Cultivator* correspondent:—"Most of the public plans or rules of measuring land seem arbitrary, and require certain numbers used to be remembered without understanding the reasons for their use. Nearly all use feet, rods or yards, and these must be reduced to acres. Gunter's chain reduces all land measurement to a decimal system. Then it is plain, easy, practical, and less liable to errors than any other known way of measuring. If the farmer has not a chain, he can, for 50 cents, procure from almost any store a tape-line with chains and links marked on one side. With this he can measure the length and breadth of any field that is a square or parallelogram. Multiply them together, and, as ten square chains make one acre, point off one place for dividing by ten, and he has the area in acres and decimals of an acre. To illustrate, suppose the field is fifteen chains long and ten chains wide; multiply 15 by 10—the product is 150. Pointing off one place, we have 15.0, that is, fifteen acres. If the field is not regularly shaped, but approximates a parallelogram, measure in several places, get the mean length and breadth, then multiply and point off as above. All of the trouble there can be to any one about this is, when links enter into the calculation, the decimal point must be kept at the right place. Suppose the field 12 chains, 50 links long, and 8 chains, 40 links wide. Links being decimals, multiply 12.50 by 8.40—equals 105.00.00; points of one space; we have 10.500.00 that is, 10½ acres. The farmer need not know there are any such lengths as feet, yards or rods. They only complicate the calculation. In irregular fields, where the exact area is required, the compass must be used; especially if deeds are to be made, following plats.

#### Lucerne for Forage.

A Rhode Island correspondent writes to the *Country Gentleman*:—"In the spring of 1866, I selected about half an acre of land which had been in hoed crops. The soil was in good heart, although naturally a poor sandy loam overlying white mortar sand not worth cultivating except for early vegetables. About the middle of April, lucerne was sown in drills nine inches apart, came up well and was hoed twice. In September it was cut, as the growth was too heavy to leave upon the ground, and the plants would have matured seed. After this year the field was not hoed.

In 1867, 1868, 1869 and 1870, the lucerne was cut three or four times each season and the yield was enormous. In 1871, I found that many of the plants had died. Grass had grown up in the spaces between the drills and choked