PROCEEDINGS

OF THE

TWELFTH ANNUAL

CLOSING FARMERS' INSTITUTE

HELD AT

JANESVILLE, MARCH 8, 9, 10, 1898.

Hon. A. A. Arnold, of Galesville, was called to the chair by Supt. McKerrow. Prayer by Rev. W. A. Hall, of Janesville.

ROTATION OF CROPS.

GEO. C. HILL, Rosendale, Wis.

Mr. Chairman, Ladies and Gentlemen:—We believe that a system of rotation of crops should be followed by all our farmers. A few of the reasons for this we will attempt to give.

When we talk about the rotation of crops, we do not mean by that a rotation of grain crops, though that might be better than no rotation, because the different kinds of grain would require slightly different fertilizing elements and modes of culture. But in this case the difference would be so little that it could not be called a good system of rotation.

Bad Effects of No Rotation.

In Wisconsin, in the earlier days of farming, the principal business was the raising of wheat. It was the easiest crop to raise, and it was grown continuously, year after year, perhaps twenty or twenty-five years, when it was discovered that the yield began to be less, and pretty soon the
crop was infested with chinch bugs and other insects that drove us out of the business. Then again we found that our lands were becoming overrun with wild oats, wild buckwheat, wild peas, and other weeds that came up

![Image of a orchard](image)

**VIEW IN GEO. C. HILL'S ORCHARD.**

and took the place of the grain crop, so that in many places there was not over half a crop of wheat grown. This was the result of continuous cropping of the same grain year after year, so that we were driven out of the business, and we have learned since that it was for our good.

**Advantages of Rotation.**

Among the reasons why we should adopt a system of rotation of crops perhaps the principal one is the maintenance of fertility on our farms, thereby keeping up the productive powers of our lands. This result will follow the practice of a good system of rotation, which includes livestock, clovers and grasses, and hoed crops. So I think, first of all, in talking about a rotation of crops, that the Wisconsin farmer should adopt some kind of stock farming as his main object, and then grow his crops with reference to feeding that stock. As to what kind of stock we should keep, that is not for me to say. We cannot lay down any iron clad rules for any one, because of the difference in location, in soil, in markets, and perhaps above all, the difference in tastes. Some of us may like to milk cows early and late, and give our time and attention to this class of animals, which certainly requires the closest attention. Then there are others who like other classes of stock, and whatever we like best I think we will do best with, but having adopted intelligently some system of farm management, I think we should stick to it pretty closely, and not be changing about from one thing to another on account of the high or low prices that may prevail for any particular product. I believe we cannot conduct our farming operations successfully without this system intelligently adopted and followed year after year, unless we become convinced that we are on the wrong track.

**What Crops to Grow.**

Now, if we have adopted some branch of animal husbandry, the crops we should grow and how to place them will depend somewhat on the kind of stock, but, first of all, I should say that the clovers and the grasses should certainly be in the rotation. I also believe that we should have a corn crop, which is the greatest feeding crop that we grow, and we should have a small grain crop of some kind for the feed, and to have an abundance of straw on the farm. In some portions of the state there are some special crops of which I have not much knowledge, nor have I knowledge as to the best way that they could be introduced into the rotation of crops, such as the potato crop, or the onion, or the tobacco, and I have experience only with the onion, but I do know that these spe-
cials crops are robbers of the soil; they want the best places on the farm, and they rob other portions of the farm of their share of fertility.

One advantage of a rotation of crops is that it distributes the manures made on the farm all over the farm, and does the work evenly. We also distribute the tillage over the farm, and I believe that that is of great importance.

that there is a permanent pasture; therefore, we will divide the remainder of the farm into three portions, one in clover, one in corn, and one in oats. In this way this three-year rotation is first clover, then the manures of the farm put on the clover sod sometime after the hay or seed is off between that and corn planting time; then we follow with corn, and that followed with oats and seeded.

FARM HOME OF GEO. C. HILL.

A Three-Year Rotation.

I will outline two or three systems of rotation, one of which we follow on our own farm. The three-year rotation is considered by many the best plan. This rotation supposes that somewhere on the farm there are some fields that are not tillable, but are used for permanent pasture. Permanent pasture is a very good thing, but it is not as good as a pasture that can be introduced into a rotation, into the tillable portion of the farm; but this three-year rotation supposes

This is a good rotation with one exception. The oats following the corn is not a very good place to seed clover with; that is, on farms where a large amount of stock is kept, as the corn land is too rich for oats and they will often fall down or grow so rank that the clover is smothered. So on our farm we follow a four-year rotation. First clover, not manured, but broken up and sowed with oats, and that manured and planted with corn, then perhaps flax in some places. Of these sowed with either winter or spring
wheat, or barley, if you choose to grow barley. We have always kept wheat in our rotation, not because it has always been a profitable crop to grow, but because we wanted a good place for the clover, and we have found it so.

Other Good Rotations.

In the case of the four-year rotation, we get over the tillable portion of the farm once in four years with the manure, and once in four years with tillage; we get two grain crops, but they do not come together. I think we never should put two crops of the same kind together, especially grain crops, but we may put two cultivated crops together without doing any harm.

In some portions of the state that we have visited this winter they tell us they want more than a third or a fourth of the farm in corn. In such a case as that I would suggest that when we have had the clover and the oats, that the oat field be manured and planted with corn and followed with corn the next year, and that followed with wheat or barley. This would be a five-year rotation. On the farm of John Gould, in Ohio, there is a little piece of land upon which he has experimented in growing corn year after year. Last summer he had his eleventh crop of corn on that piece of land, and it looked about as good as his main crop; it was perfectly clean, thoroughly cultivated, and he told me that he dressed that piece of land with manure once in two or three years lightly, but I do not think we could follow any other grain crop ten or eleven years and have as good a crop as in a rotation.

DISCUSSION.

Mr. Hughes—Would it be advisable to substitute rye for wheat?

Mr. Hill—Yes, so far as the seeding is concerned, but we do not consider it a very valuable crop to grow, at least on some farms.

Mr. Hughes—I think there is great danger of land washing considerably if you put corn on two years in succession, in a section of the country like this, where there is a great deal of rough land.

Mr. van Loon—are you always sure of a clover catch?

Mr. Hill—we never had but one failure, but we have no sand on our farm; ours is a clay and burr oak soil.

Mr. van Loon—Do you raise spring or winter wheat?

Mr. Hill—Both. You may like to know how we grow winter wheat after corn. The largest portion of our corn is put into the silo about the first of September, and that land is usually planted immediately to winter wheat and the balance with spring wheat.

Mr. Hoxie—How do you seed your clover on your winter wheat?

Mr. Hill—we sow the clover seed in the spring, usually in March, but sometimes later, when the land becomes firm, then we drag the seed in; this plan gives the best results.

The Chairman—When you put the manure on your land once in four years, what crop does it go on?

Mr. Hill—On the oat stubble, and follow with corn.

The Chairman—Why don't you put it on the wheat and drag it, fertilize it?

Mr. Hill—Our manure is very coarse, drawn from the stables, and we don't think we could work it that way.

Mr. Whitley—What objection would you have to this rotation: Start with clover and pasture the first year, then in the fall manure it and let it lay one year; then put in corn two years, then oats two years, and seed the second year; that is, taking it on land that does not wash too badly.

Mr. Hill—On our farm the objection to that rotation would be that the oats follow the corn. The strength of the manure after the second year might be taken out so we might be able to do it.
Mr. Sayre—You say you put the manure on the oat stubble and then plow it in. How would it be to put it on clover and plow it in?

Mr. Hill—I admit there is no place on the farm that is as good as a clover or grass field to spread manure. In our oat crop we always sow clover seed and we undertake to get the ground covered with clover and very often we do, but not always. This past season we had a splendid catch on the oat field and that makes a good place to spread the manure. It keeps it from washing away, is taken up by the clover plants and kept until it is needed.

Mr. Everett—I have been disputing with Mr. Hill a good many years. I believe that most of our farmers present, in Rock county, would favor Mr. Sayre’s method; that is, to spread the manure on the grass land, and in my case it has always been clover. I would not object to the plan of the gentleman who says that he pastures the clover first and then follows two years with corn and two with oats. I believe the better system of rotation is to plow in the manure on the clover, evenly and lightly, cover over the whole field, if it is a four-year rotation, harrow lightly in the spring, then take off a crop of clover hay, and if it must be pastured, pasture after that because that gives a good chance for the strong grass roots; then follow that clover with corn, and it is in the best possible condition for corn, for the soil is warm and full of humus. We understand that clover robs the soil of phosphoric acid and potash, while it puts into it nitrogen. By using it in that way we get a good distribution.

Mr. Whitely—We quite frequently get a full catch of clover and there is more or less foxtail and other weeds in it, and yet there is enough clover to justify us in leaving it. To cut it for grass, there will be a large amount of stuff that is of little use, but by turning on the stock, especially sheep, they will keep down this foul matter and make use of what grass there is, and I find that we get a very heavy crop the next year. The land seems to wear longer and to produce two good crops of corn. Then, after the second crop of corn, a crop of oats. The seed seems to catch better, and I have had very good results in that rotation.

Mr. Everett—I think a six-year rotation is too long—it does not carry the clover and manure crop over the farm often enough.

Mr. Scott—I would certainly object to following corn with corn. There would be a loss of ten or fifteen per cent. in the second crop.

The Chairman—I have a five-year rotation. I sow clover seed in winter wheat, putting pulverized manure on top of the ground, and dragging it in with the wheat, and I never fail of having a good catch of clover. The next year have a crop of clover. The first year I have a crop of wheat, next a crop of clover, which I mow for hay and the second crop for seed. The third year I have a crop of hay; I sow with Alsike, red clover and timothy, a little of each, and get a good crop of hay. Then th corn comes, then a crop of oats and winter wheat again. That makes a five-year rotation with good results, depending chiefly, I think, on the fact that I put the manure on the clover just where it is most needed, and get the benefit of it. Of course the main object of this rotation is rest to the soil—an opportunity for nature to recuperate and to disintegrate the particles and put them in such shape as the plants need. Another thing, we say the corn crop is an easy crop. The reason it is easy is because the ground is covered during the extremely dry season that is ordinarily bare when you take off a crop of small grain. You must keep some sort of a shade or mulch in there to maintain fertility. I maintain that cultivation tends to sterility unless
we keep up nature's conditions, keep
the ground shaded. Then again, in
feeding crops, it is like feeding stock.
A fibrous crop like flax takes a great
deal of the elements of fertility from
the soil, much more so than a root
crop, for instance, just as in the ani-
mal growth where we want to raise
bone and muscle takes the most ex-
pensive feed every time, because that
is an expensive product. For cheap
products you may give a cheap feed,
and it is just so with the soil.
Mr. Convey—One cultivated crop is
all right, but where you have two cul-
tivated crops in succession, it gets
the land out of condition in a meas-
ure; it causes the land to wash and
besides it has not the capacity to ab-
sorb moisture. I would not approve
of a rotation in which there are two
cultivated crops in succession.

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CLOVERS.

Supt. GEO. McKERROW, Madison, Wis.

Mr. Chairman, Ladies and Gentle-
men:—I heartily agree in the state-
ment which has been made here this
morning that clover is the most im-
portant crop that we can raise on our
farms. I know of no other crop than
clover or plants of the same family,
the legumes, that will yield so valu-
able a crop in feeding value, in dol-
lars and cents, and at the same time,
practically leave the land better than
it found it. To be sure it is more
valuable upon some soils than others.
In a discussion on any subject we
cannot lay down an iron-clad rule
that applies alike to all kinds of soils,
and all methods of farming, but we
can discuss a rule that, as a rule, ap-
plies under more varied conditions
than will the exception. In the dis-
cussion just closed the rotation of
crops presented by Mr. Hill is no
doubt the best for his farm; that
rotation followed closely might not
be the best for some other gentle-
man's farm, but the principle that
makes it the best for Mr. Hill's farm
will come very near making it best
for everybody's farm. We have to
apply all these things with good judg-
ment.

Work of the Clover Plant.

We have many different clovers,
Mammoth, Medium or June clover,
Alskie and White, that we Wisconsin
farmers are fairly well acquainted
with. They all do the same kind of
work; they all furnish a protein or
muscle-building food; they all have a
good, mechanical effect upon nearly,
if not upon all soils; they all furnish
a very valuable, high-priced element
of fertility in the portions that are
turned back and rotted in the soil;
they all furnish a very valuable
humus, or vegetable matter, which, to
a certain extent, is needed in all soils
for the preservation and holding of
moisture, aeration, and the successful
growing of crops.

Clover as a Drainage Plant.

The clover plant, as I have already
said, has a mechanical effect upon the
soil. Soils that have been cropped for
some time become compact and
heavy; soils that have a hard clay
subsoil coming near the surface, nat-
urally have very poor drainage
Drainage will be talked about as a
separate subject, but right here I will
say that one of the most beneficial ef-