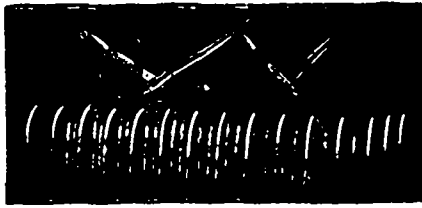


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YOUNGSTOWN, OHIO, May 31, 1899.
Please accept thanks for your kindness. You appear to be the most liberal manufacturers we have ever dealt with. We wish to say that this is the third year we have ever used your weeder, and we are very much pleased with it. We used it for corn, potatoes, cabbage, tomatoes, etc., with wonderful results. We had a good two-horse cultivator at the time we bought your "Success" weeder, and we state truthfully that we have not used the cultivator since as one small horse and your weeder will do more and better work than two teams and cultivators. The teams, of course, can be used for other work, which means a big saving.

Yours truly, J. E. GRAY & SON.

LAFAYETTE, IND., July 20, 1899.
I simply wish to say that I am more than satisfied with the 12-foot mounted weeder I purchased of you last spring. My corn is cleaner and the ground worked better than it ever was before. I would not think of parting with it for \$100 if I could not secure another like it. I expect to send you some orders next spring as my neighbors like it also.

Yours truly, D. D. COLZ.

All Around the Farm.

ERADICATING WIREWORMS.

What is the cause of a farmer being found at his dinner table? Hunger. The wireworms feed upon seeds, roots and foliage of plants, and the worm is trying a new diet when he attacks the tuber. There are five species of wireworms nearly alike and most people are not able to distinguish between them and millipedes. The true wireworm is long, slender and has a very hard body. It is from a light to a dark yellow in color and not very active when disturbed. The wheat wireworm is the most numerous and most destructive kind in N. Y. It is distinguished from the others by eye-like depressions on the sides of the last segment. Other varieties infest grass and corn land. Some mature in July and others in Sept and the fall months. They emerge in June as click beetles, with which many a boy has fooled away his time.

Wireworms cease feeding in the fall before Nov and descend into the soil for several inches, where they form cells and remain in a torpid condition all winter. The greatest damage is usually done in spring when the long fast has made them hungry. The click beetles eat slices of potatoes, wads of green clover, corn meal dough under boards in a corn field. Clover is the most attractive bait. They are most active at night and seek food by running over the surface of the ground. Poisoned food will kill many of these "parents of the wireworms" and this method is practiced in fields very badly infested or where the area is small.

There are hundreds of remedies recommended by farmers but from the experiments of Prof. Slingerland we conclude they are of no value as usually given. For example, Seed soaked in Paris green and water, Fowler's solution, arsenic, corrosive sublimate and other poisons were relished without harm by these vigorous fellows. Seed rolled in tar or Paris green and flour was not protected. Salt, kainit, etc. prove efficacious only when used in such quantities as to kill vegetation or at an excessive cost. Salt was tried at the rate of 8 tons p a, and while 1000 lbs p a injured germination of wheat it did not drive down or away the wireworm. Lime, either slaked or unslaked, had no effect on them. It is the opinion of some they can be starved out by summer fallow, but in the experiment cages at Cornell many of them lived nearly a year in clean soil; in fact, more of them died in cages which had grass growing than in the clean soil. Such crops as buckwheat, mustard and rape did not prove distasteful or starve them out. Wireworms are not attracted to poisoned baits and insecticides like bisulphide of carbon, and others failed or were too expensive.

It is said that farmers who practice a short rotation are not troubled to any great extent with these pests. Soil ground which remains undisturbed becomes the breeding ground for many varieties of insects. Fall plowing, with

short rotation, destroys these favorable conditions and interrupts their plans. They live at least 3 yrs in the worm state. When they change into the adult stage, about Aug, they remain in the cell till spring. They are at this time tender, and if their sleeping room is broken, soon die. Good cultivation at this time, fall, will destroy more of them than all other methods combined. Only the pupae and adults are destroyed at this time and several years are required to eradicate them.—(C. E. Chapman, Tompkins Co, N. Y.)

THE BENEFIT OF SUBSOILING.

Subsoiling adds greatly to the productivity of heavy clay soils. If the subsoil is left undisturbed it forms an almost impenetrable strata or floor beneath the top soil and thus limits the downward growth of the roots. By subsoiling is meant the loosening of the lower layer of soil and not the throwing of it to the surface. In deepening our clay soil we must be very careful to avoid throwing too much of the newly broken clay to the top at one time, as this would probably lessen the productivity of the soil for a season or two. The best way then, to deepen clay soils is to break the upper layer with a turn plow to the usual depth, and follow in the open furrow with a bull-tongue. This bull tongue is simply one straight, pointed tooth which tears up the hard soil at the bottom of the furrow left by the turn plow, but throws no soil out of the furrow. This requires an additional man and mule to break up the same area as would be gone over by one team, but the increased productivity will usually more than equalize the additional expense.

The deeper breaking of the soil gives greater range to roots of plants by allowing them to penetrate farther down, and in this greater range they will find more food. Loosening the lower layer of soil exposes it to the action of the air, water and frost, each of which aids in breaking up the hard and unavailable particles, and puts them in a condition to be used by the plant. Thus the hard and apparently worthless clay is changed into a valuable soil.

The drop of rain water, falling through the air, collects a gas which is our most costly fertilizing element. If this rain water passes through the soil, this gas is absorbed by the soil and thus we gain a large amount of a costly fertilizer. But if the rain water runs off on the surface, this gas is lost. If soil is broken deeply, a larger amount of rain water can be filtered by it, and we save more, but if the soil is loose to only a slight depth, then more of the rain water runs off on the surface, carrying the gas with it. It also washes away a good many particles of what soil is there.

In a dry season you can notice an advantage of the deeper broken soil over the shallow broken, because the roots, being able to penetrate deeper, are enabled to find a larger supply of moisture than those confined to a shallow soil. In a wet season, the deeply broken soil, being able to hold more water, less runs off over the surface to wash away

the top soil. As the water sinks into the lower portion of the loose soil, the upper portion dries quicker and cultivation can begin earlier.

Last year two fields of clay soil were planted with corn. One was subsoiled, the other not, but was fertilized. During the growing season there was a marked difference in the appearance of the crop, that on the subsoiled field being much darker in color and making a more luxuriant growth. It also held its green color longer during the hot, dry summer season, not firing up as quickly as the other, this giving evidence of the additional moisture which the roots found in the deeper soil. The subsoiled field was naturally more fertile than the other, but not enough to give the much larger yield which was obtained.—[A. H. Prince, Wake Co, N. C.]

THE VALUE OF ALFALFA.

Alfalfa is the most valuable rough feed grown in Kan. Combined with common grains it is worth three times as much as an equal amount of prairie hay, four times as much as sorghum hay, five times as much as corn fodder and 1 1/2 times as much as clover hay. Steer feeders report an average gain of 1 1/2 to 2 lbs p day p steer with corn and the ordinary roughness and 3 to 5 lbs p day when alfalfa is the roughness fed. At the Kan exper sta, one lot of fattening hogs were fed all the grain they would eat and another lot all the grain and all the alfalfa they would eat. The hogs having the alfalfa hay ate more grain and gained more pounds of pork for each bushel of grain consumed, showing a gain of 865 lbs of pork per ton of alfalfa hay. Hogs on alfalfa pasture showed a gain of 776 lbs p a of pasture. Alfalfa is particularly adapted to feeding with our chief drought-resisting grain, kafir corn, each having what the other lacks, and the two fed together making an admirable combination for all feeding purposes. In those sections of northwestern Kan where alfalfa is largely grown, the feeders are paying 2c p bu more for corn than is paid in neighboring communities where alfalfa is not grown. The feeder without alfalfa cannot compete against the feeder who has it, either in regard to gains or cost. Alfalfa is not generally raised in eastern Kan. It can be raised along every stream and in every draw in western Kan, and in Decatur Co I have seen good crops grown on high uplands 150 ft to water.—Prof Cottrell.

To Exterminate Moles mix calomel in a small piece of biscuit dough or biscuit pills. Open fresh runs and drop a few in. Cover the opening with fresh soil. This method is best, next to a mole trap.—[W. S. Culp, Chester Co, SC.]

About Peanuts—The early or Spanish peanut has a very thin shuck, is very oily and grows unusually compact. This variety has done splendidly on my farm in Miss and also in Mich and Wis. The large double-jointed peanut is not a sure cropper and always contains a large quantity of inferior nuts.—[J. H. Van Ness, Miss.]

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