

often it is killed in the spring by a cold snap after it has started to grow. I find also that alfalfa will stand more drought the summer it is sown than red clover will. Again, I like it because when one has some alfalfa along with red clover it gives one more time to harvest it, as the alfalfa is ready to cut about July first and clover about the twelfth, so that if one has twelve or fifteen acres of clover, and about one-half of it is alfalfa it gives a better chance to get it all cured before any of it is too old. Another thing is that should the beginning of July be wet, the middle of the month very often turns out to be dry, and vice versa, so that it leaves things so that one has some hay to cure each year during a dry spell. Some think that it costs too much for seed to sow fifteen or twenty pounds per acre, but I don't altogether agree with them and I can pretty nearly prove it by figures. I sow about six pounds of red clover per acre and as it is about twenty-three cents per pound this amounts to \$1.38 per acre. Sowing fifteen pounds per acre of alfalfa, and the seed at about the same price as red, makes an outlay of \$3.45 per acre. True, there is a difference of \$2.07 in favor of the red, yet when one figures that while red only lasts one year, alfalfa lasts at least three, making it only \$1.15 per acre, or a difference of thirty cents per acre, and if one leaves their alfalfa four or more years the difference is all the greater in favor of alfalfa.

This year I intend sowing one-half bushel or about two acres of Ontario Variegated, which will cost me forty-one cents per pound, or \$6.15 per acre, but if I get four crops off one sowing, it will only mean \$1.54 per year.

Possibly it might interest some to know the kind of soil our farm consists of. It is a rich sandy loam, well underdrained and rolling. I have never had any loss by winter killing yet, and I have sowed it several times and I have had red clover killed pretty badly some years. The only thing that seemed to be too much for it was for ice to freeze it to the ground, as around the edges of a pond for instance, or if the snow should thaw into



W. R. Reek, B. S. A.

Recently appointed assistant commissioner of agriculture in Ontario, and who has resigned to accept the position of Deputy Minister of Agriculture in New Brunswick.

a soft slush and then freeze hard. However, I am satisfied that I stand just as good a chance of escaping winter killing with the alfalfa as with the red, and I think that we have a better yield with it than with the red, because in 1915 we had four loads to the acre of alfalfa and about three and one-half of red, and in 1916 we

had five loads of alfalfa to four of red, so that during these two seasons the alfalfa came out ahead, and as alfalfa seems to me to be heavier than red I feel sure had the two crops been weighed the alfalfa would have been still more in the lead.

Some seem to think that it is too hard to cure. My candid opinion is that I would rather cure a crop of alfalfa than a crop of red or mammoth of the same yield per acre.

Dufferin Co., Ont.

C. J. L.

W. R. Reek Goes to New Brunswick.

W. R. Reek, B.S.A., recently appointed Assistant Commissioner of Agriculture in Ontario, has accepted the position of Deputy Minister of Agriculture in New Brunswick and leaves shortly to take up his duties in that province. Ontario loses one of its best men in official agriculture through the departure of Mr. Reek for the East. Those who knew him were pleased when the announcement was made that he had been secured as assistant to Dr. Creelman at Toronto, and all are sorry that he could not have been retained in this province. Mr. Reek has had a successful career since graduating from the Ontario Agricultural College in 1910. He was for a time private secretary to the late Dr. C. C. James, then Deputy Minister of Agriculture in this province, and was afterwards a representative of the Government in London, England, in immigration matters. Upon his return from Old London he was appointed Associate Professor of Animal Husbandry at the Ontario Agricultural College, a position which he held for some time, and afterwards he was in charge of the administration of the Federal Grant in Prince Edward Island. New Brunswick is to be congratulated on securing Mr. Reek's services.

Automobiles, Farm Machinery and Farm Motors.

Valves and Their Care.

People who operate garages complain quite frequently that owners do not realize the necessity for giving proper attention to valves. In fact, many an automobile driver has complained bitterly because his valves were ground, thinking that the operation was unnecessary and that the garage was only attempting to run up an extra bill. This is not a proper attitude to assume, but if at any time a doubt enters your mind that your valves have been ground when there was no occasion for such action, it is a comparatively easy matter for you to determine whether or not the operation was necessary. It would be our advice that you should keep the valves constantly in mind because they are a vital part of your power plant and, when neglected, never fail to cause innumerable annoyances.

Perhaps it would not be out of the way for us to remind you that compression is very essential in an engine, and that it reaches the maximum efficiency when the piston rings are in perfect order and when the valves are seating accurately. If there is any means of escape past the piston rings or through the valves, then the compression leaks and the revolutions of the crank shaft are not being conducted with a minimum amount of fuel and a maximum of energy. We are so enamored with the idea of grinding valves that we think you had better endeavor to err on the side of having them too clean rather than too dirty. You will never regret maintaining complete compression, but you will be sorry for a faulty one. Perhaps you know that if

all your valves become filthy, in the same ratio, that an engine will still run smoothly. You get an uneven flow of power when one valve is dirtier than another. Most motorists test compression by stopping the engine and turning it over with a crank. If there is still resistance, you know your compression is excellent. You can also determine the same condition by the elasticity transmitted to your arm through a crank. Of course, tiny leaks cannot be determined by the cranking of an engine, as the hand is not sensitive enough to locate them, and, furthermore, the resistance of each cylinder is not easily comparable. The safest way to test compression is by the purchase and use of a compression gauge, which possesses an indicator somewhat similar to a steam gauge. This mechanism can be screwed into a spark plug. The results of any work you do are readily ascertained. It is true that a great many automobile owners purchase practically every accessory known to the trade and fail to buy a compression gauge, but we trust that this article will change their methods to some extent. There is a system by which compression can be tested by means of a gauge soldered to a shell of a spark plug, but we do not recommend this method as being a satisfactory one.

Valves need grinding, in the first instance, because carbon locates upon them and forms what is known as "pits" that can be removed with a sharp edge of almost any instrument, but if you are an amateur, it might be well to show the result of your work to an expert repair man. One lesson from him should suffice, and then you will be in a position to maintain valve

efficiency. We would recommend, in a general way, that you look to your valves after every two thousand miles of travel. A grinding will never do any harm, and it may cause an infinite amount of good.

The difficulties that result from carbonizing of valves are many. The most common is the loss of power, which affects one's pride, especially in hill climbing. There is also a waste of fuel, because more gas must be burnt when compression is lacking than when it is being rigidly inclosed. Another difficulty is the unevenness in the power, resulting in a somewhat jerky motion and a failure to maintain a smooth momentum. If you will take it up with experienced drivers, we think that they will agree with us that the great essential service is accurate valve grinding.

Reports of troubles experienced by owners of new cars are coming in rather rapidly. There is the instance of an amateur motorist who exhausted his storage battery because the throttle was not set far enough upon the sector that enough gasoline could get through the carburetor. If you intend to drive with the throttle tight against the end of the sector from which it advances, you will find it good policy to advance it somewhat before using your starter and remember, that if after trying your electric system for cranking two or three times, it does not succeed in commencing the power plant, you had better look for some source of assistance, because the constant throwing over of the engine will only result in the depletion of your battery and will not accomplish any good purpose.

AUTO.

Canada's Young Farmers and Future Leaders.

Advantages and Difficulties in Following a Crop Rotation.

EDITOR "THE FARMER'S ADVOCATE":

I believe that few farmers follow a definite crop rotation. I have had no actual experience as yet, in the management of farm crops, and the little information which I have gathered together comes from my observation of other farms, and from reading about the subject, coupled with my own opinions. I know of one farmer who planted a newly broken field to corn for seven straight seasons. Two years ago last threshing, when everyone had fairly good crops, he had a very small straw stack. He doesn't believe in crop rotation.

On nearly all farms in the counties of Essex and Kent the quantity of stock kept is not sufficient to return as much plant food to the land as the crops take from it. Therefore, some other means of allowing the land to recuperate must be resorted to. Green manuring and pasturing are practiced to a great extent.

I am a great admirer of the legumes or clovers, and believe that they are soil builders as well as money-makers in themselves. Previous to working as a farm laborer I was employed, during school holidays, on a large apiary near the village of Merlin, and there first became interested in the different members of the clover family. That district produces a large amount of clover seed. I also am of the opinion that no crop, with the exception of beans and clover seed, should be sold off the farm. Every bushel of grain sold

is just that much fertility robbed from the farm, besides the loss of profit obtained from feeding. However, it is often the case that the crop must be sold to pay rent, etc.

It depends very much on the nature of the soil as to what crops shall be used in the rotation. Soil very badly depleted of fertility requires a longer time to regain its former condition than the well-treated land. "Feed the land and the land will feed you." It would be my ambition to build up the land if it is worn down and then endeavor to retain the fertility. I have been planning for some time for the day when I shall own my own farm. In anticipation of that day I am studying the different phases of the "business" and the relative values and effects of different crops on the soil. All the grains, timothy, blue grass and tobacco drain very heavily upon the resources of the soil, while the legumes, being of rank growth, form excellent crops for plowing under in addition to their nitrogen collecting value. Taking the clovers as the most important plants on the farm, I have in mind for my own practice a rotation something like the following:

First year, pasture and apply barnyard manure; second year, corn or beans; third year, oats; fourth year, clover; fifth year, wheat or barley; sixth year, sweet clover.

The advantages of the above system are: Abundant clover to supply nitrogen content to soil; sweet clover for pasture, which, when plowed under, furnishes excellent humus or decaying vegetable matter; thorough cultivation of corn or beans destroys all weeds growing

from seeds in the manure, and forms a clean seed-bed for the oats and clover; ploughing deep for corn, shallow for oats, and then again for wheat aids in the eradication of the excessive and pernicious growth of field bindweed, very prevalent in these sections; the soil is turned over much oftener than in the common practice of allowing meadows to run three or more years before re-breaking, thus ensuring a more thorough distribution of nourishment besides being a better method of cultivation; sufficient crops to insure a fairly large investment in stock. There are a few difficulties, however. The great disapproval of sweet clover on account of its weed habits is against it. The plant is not thoroughly enough understood. Sweet clover, while furnishing excellent pasture in its young and tender stages, has a tendency to grow woody. If cut when just commencing to toughen and removing stock to other quarters till the clover has made sufficient growth to warrant their return might overcome this, or possibly stock pasturing continually would keep the growth back enough to prevent woodiness.

On small farms or garden patches a shorter rotation could be practiced to advantage. However, on the average farm where insufficient stock is kept to return fertilizer to the land I fail to see where a short rotation will work, and at the same time meet the present great demand for grain and meat, and maintain a state of high fertility or kill weeds in the present short-handed labor situation.

Essex Co., Ont.

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HUGH CURTIS.

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