

a red or green shade could not be given by mixing ochre or other cheap coloring. Nearly twenty-five years ago, a gentleman with whom I was boarding, shingled a small house with the cheapest cedar shingle he could get, costing 90 cents. This roof he treated with the hot coal tar as I have described. The roof has not been shingled since, and to-day is in good condition—not too bad for shingles at 90c. per M.

The dipping is simple, and can be done more quickly than one would think, a boy doing about as well as a man. Take a cheap tub—say, a good-sized lard tub; across the top, about one-third way from the side, nail a board with straight edge; nail onto the board a piece of heavy felt, extending slightly beyond the edge of the board. As the shingle is drawn out of the paint, it is at the same time wiped against the felt, taking off the surplus paint, which runs back into the tub. An old sweat-pad or top of felt boot will furnish the felt.

Charlotte Co., N. B. R. W. WHITLOCK.

Experiments with Fertilizers.

Editor "The Farmer's Advocate":

Please allow me space in your valuable paper to give the results of some experiments which I conducted to test the value of fertilizers; potash, perhaps, more particularly.

Two years ago I tried an experiment on potatoes. Three plots were used: (1) Unfertilized (check plot); (2) complete fertilizer; (3) fertilizer without potash. The "complete fertilizer" consisted of basic slag, nitrate of soda and sulphate of potash.

The season was very unfavorable for growth, and as the crop was not above the average on either of the fertilized plots, I began to think that no fertilizers were any good, and were entirely wasted except in a good year.

This year I raised oats on the plot to which the complete fertilizer was applied last year, and seeded out with grass and clover. When the oats came up it was only a short time before I could easily distinguish where the fertilizer had been applied to the potatoes the previous year, as it was sown in the drills. The oats gradually gained in the drills until they were fully six inches above the rest, and maintained this lead until harvested. After harvesting the oats, to my surprise I still could distinguish the drills by the rows of clover, thus proving without a doubt that the fertilizer that was not used by the previous crop remained in the soil. This is a point that farmers should observe, i.e., that the complete fertilizer has a beneficial effect for two years at least.

This year I tried another experiment on potatoes with the same fertilizers, and consider it a great success. Plot 2 (complete fertilizer) gave me a yield of 336 bushels per acre, notwithstanding the fact that this was a dry season. This was an increase of 120 bushels per acre over the unfertilized plot, and 48 bushels over the plot without potash.

I trust that these experiments will prove interesting to a large number of farmers, and think that better results generally would be got by using the quantities advocated by fertilizer authorities.

HARRY A. ACHESON.

Charlotte Co., N. B.

County Road Systems.

County road systems have, to the present time, been established in 15 counties of Ontario, comprising over 40 per cent. in area of the Province to which the Highway Improvement Act is applicable. The counties which are constructing these improved systems of leading roads are: Prince Edward, Halton, Perth, Frontenac, Lennox and Addington, Middlesex, Peel, Lincoln, Oxford, Wellington, Hastings, Lanark, Wentworth, Simcoe and Waterloo. The counties operating under this Act have assumed an average of about 12 per cent. of the road mileage in each county, the total now amounting to 2,800 miles of road. Were county systems established throughout the Province on the same ratio, there would be 6,000 miles to be permanently constructed.

One of the most recent additions to the list of county road systems is that of Waterloo, while the County of Frontenac has just completed its system by finally assuming a system of 104 miles. In the case of Frontenac, it is estimated that the cost of construction will amount to \$160,000, of which the Provincial Government will pay one-third. Elgin County Council has before it a proposal to establish a county system to comprise 250 miles, on a basis of \$1,500 per mile.

County highway systems are meeting with splendid success throughout the Province. In addition to making a substantial improvement of the leading roads, they are affording an example of how good roads should be built, and, through the influence upon township councils, a considerable benefit is thus being reaped. While there is considerable variation throughout the Province to meet local circumstances, the roads are being constructed in a durable manner, and due atten-

tion to drainage, grading, a covering of broken stone and gravel, and the use of modern road-making machinery, such as grading machines, rock-crushers and steam rollers, is being given. The aim has been to secure permanent, and thus experienced, supervision; to encourage uniform and systematic work; to properly operate modern and economical implements; to provide careful, constant and methodical supervision and maintenance, and to educate the public as to the meaning of good roads.

All of the roads in the Province cannot be improved in a substantial manner at one stroke. A commencement has to be made at some point. To set apart certain roads under county-council management, gives an opportunity for such commencement. Township councils, through the influence brought to bear upon them by ratepayers, are unable to devote special expenditure to com-

The meaning of county roads should not be misunderstood. They are not expected to comprise the old systems of through roads, which may have been established years ago. By the construction of railways and the growth of local towns and villages, the lines of travel have changed. While a county system should, if possible, be a connected one, yet this is not necessary. It is expected that the roads improved will be those leading to the local market centers and stations, such as are now most heavily travelled. It is desirable that every farmer be within convenient distance from a good road leading to his local market.

In some counties stone roads are being built; in others, gravel is being used. In some instances gravel is being put through a stone-crusher, and is graded and screened. In some instances thorough tile drainage is being carried out, and in others the straightening and turnpiking of the roads are the more striking features. Local conditions define the class of work to be carried out. It is expected that local material will be used as far as possible, and that the work performed will be of a class suited to the amount of travel on the roads. Some roads close to towns will have three or four times the amount of traffic over them that other outlying sections will have, and the strength of the road should be of a proportionate character. County systems of highways, where they have



A Snug Homestead.

Residence and grounds of Alex. Jackson, Simcoe County, Ont.

plete and finished work. A scattering of the township expenditure in small improvements is demanded of them, and has become the established custom. It is only by removing certain roads from this influence that finished and durable work can be expected.

One of the aims of the county-road system has been to secure more permanent, and, in consequence, more experienced management than is provided by townships. The work of road construction is one extending over a period of years, and the supervision should be of a similar character, if systematic results are to be expected.

It is sometimes asked if county councils can perform the work as cheaply as township councils could do it. County councils are made up of chosen men representing each of the local councils. While exceptional instances may no doubt be pointed to (for mistakes are common to the human race), it is an incontrovertible fact that the county councils are doing the work much more cheaply than township councils can perform the same class of work. In bridge construction, county councils secure more competition among bridge companies and concrete contractors. In methods of doing ordinary road-work, more efficient methods can be insisted upon. As a single instance, may be pointed out the size of loads required by county councils, which are from 1½ to 2 cubic yards of gravel and stone. They can fix the number of loads to constitute a day's work, and see that no favors are given.

been established for two and three years, and the results are becoming apparent, are giving splendid satisfaction. The cost is found to be much less than extreme opponents are so fond of urging. In the great majority of cases roads are being built at an outlay not exceeding \$1,500 per mile. Some roads cost less, and there are occasional instances where, for special reasons, they cost considerably more. The cost, in general, is dependent upon the distance road material has to be transported. The best work gives the best satisfaction, irrespective of cost, so long as money is not misapplied, and the ratepayers are receiving value for the expenditure. The people of Ontario are reasonable, intelligent and progressive. They want good roads, and, wherever the meaning and benefit of them has been brought home by local examples, they are willing to contribute generously for good work, and are anxious that it be extended as rapidly as possible.

A. W. CAMPBELL,
Deputy Minister of Public Works.

Toronto.

Our Methods Gave Results.

I wish to thank you very much for the way you answered my question regarding feeding milk cows without roots or silage. It was very satisfactory. I find quite an improvement in the milk flow since adopting your method.

York Co., Ont.

ABRAM PIKE.



Fifty-nine Romney Shearling Rams.

On the lawn in front of farmhouse of Mr. A. I. Hickman, Court Lodge, Egerton, Kent, England.