FARMING, LIVE STOCK, HORTICULTURE AND EVERYTHING OF FARM INTEREST

FARMERS' BURDENS LIGHTENED BY USE OF MECHANICAL POWER

Gasoline Engine Chief of Innovations — Hot Air Engines Also Employed for Light Work — Windmills Believed to Be Stronger Than They Are.

The universal adoption by progressive farmers of mechanical power for grinding, pumping, sawing, churning and a host of other purposes has led to the market being flooded with engines of various types propelled in a variety of ways. The chief of these, and the most reliable, is the gasoline engine.

The Four-cycle Engine.

A cycle is the movement of the piston from one end of its stroke to the other, and two cycles occur during each revolution of the balance wheel. In a four-cycle engine the operations occur in this order: First, the explosion of the charge driving the piston forward; second, the exhaust, which consists in the expulsion of the burnt gases; third, the intake of fresh gasoline and air; fourth, the compression of this air and gas in the cylinder prior to the next explosion. Consequently one explosion occurs at every two revolutions, i.e., at every fourth cycle.

The Two-cycle Engine.

In the two-cycle only two operations take place in each half revolution. The piston forced forward by the explosion compresses the gasoline and air in the base, and as it comes back the compressed gasoline and air are forced into the cylinder while the exhaust opens at the other end of the cylinder. At the same time fresh gasoline and air are taken into the base and the engine is ready again for another explosion. This means that the two-cycle engine gets an explosion for every revolution. It would be natural to suppose that as the two-cycle gives twice as many explosions as the four-cycle in the same time it would be twice as powerful. In theory this is a correct deduction, but in practice the two-cycle delivers about 14 per cent. less power than the four-cycle. This is due to an imperfect exhaust and consequent impurities in the charge, weakening it.

Advantages of Two-cycle.

The two-cycle engine then is not so economical, but it has, nevertheless, several advantages. As there are two explosions to every revolution, it does not require such heavy balance wheels to keep it running between explosions, consequently the frame and base may also be built lighter, and portability in a farm engine is one of the most desirable features. The difference in cost of running is, after all, only a matter of some three dollars per annum.

Cost of Running.

Prof. W. H. Day, O.A.C., gives the following figures as to cost of running the two-cycle engine on a farm of 320 acres, where 2000-2500 bus. of grain per annum was ground for stock feed, and where horses, cattle, sheep and pigs were kept:

Grinding—2000-2500 bus., 3 h.p., 20 days.

Pumping—1 h.p., ½ hr. per day. This will pump 2500 gals. from a well 40 ft. deep, or 125 bbls. from a well 20 ft. deep.

Cutting—3 h.p., 3 days of 10 hours each.

Pulping—½ h.p., 1 hr. per day for six months.

Washing—1-6 h.p. 6 hrs. per week.

Sawing—3 h.p. one day.

Separating—1-6 h.p. ½hr. per day.

Churning—1-6 h.p. 1½ hrs. per week.

The total amount is 3 h.p. for 1 hr. per day, and the gasoline for that amount of power at 20 cts. per gallon would cost $27, 14 per cent. of $27 equal $3.78. Therefore, on the largest farm the difference in fuel consumption between a two-cycle and a four-cycle amounts to less than $4, and on the average farm it would not amount to more than $2 or $3. The ease of moving would more than make up for the extra fuel consumed.

Advantages Over Steam.

The difficulty with gasoline engines is trivial compared with those encountered in handling steam engines, and trouble with gas engines is usually due to the ignorance of the operator. A very little handling gives the requisite experience especially with the almost fool-proof engines now on the market. If only one engine were to be used, a 4½ h.p. will satisfy the farmer best, but it is advisable and economical of labor to use two engines, an 8 h.p. and a 2 h.p. Eight horsepower is almost the lowest possible power that can be used for silo filling.

Hot-Air Engines.

These engines are simple, can be had for any kind of fuel and are easy to operate. They depend for their working on the alternate contraction and expansion of cooled and heated air. Their chief use is for light work such as pumping, separating and churning, as they are not made in units higher than 4 h.p. Their chief objection is their great weight compared to the power delivered.

Windmills.

Windmills are generally believed to have much more power than they really possess. This varies with velocity of the wind, the size of the wheel and their working load. In a 16-mile wind an eight-ft wheel will pump 848 gals. per hour to a height of 25 ft., which on calculation proves to require less than one-tenth of a horse-power. This is taken from manufacturers' figures, so that it is easy to see that the power developed on the ordinary breezy day is pretty small. In a 32-mile wind we would get from ¾ to 1 1-10 of a horse-power, and a 32-mile wind might almost be called a gale. Besides the smallness of the power developed, windmills are intermittent in their action, very often at the time when most power is wanted they are frequently struck by lightning unless exceptional case has been taken in the grounding, and in the heavy gales such as we experienced lately many have been blown down. On the whole, therefore, the farmer engaged in mixed farming would do best to purchase a two-cycle engine of two horse-power, and another of eight to ten horse-power. It is better for him to buy an engine of high horsepower, and work it well below its full capacity than to run a lower powered machine to its full capacity, as the amount of wear on the engine is far greater in the latter case.

PRACTICAL TESTS FOR SOIL ACIDITY

Persons Need Not Be Acquainted With Chemistry to Understand Them.

The following tests for soil acidity can be applied by persons entirely unacquainted with chemistry: Fill an ordinary tumbler two-thirds full of soft water. Well water must not be used, and if distilled water is not procurable, rain water will meet the case. Add a teaspoonful of the soil to be tested to the water, and stir into this a teaspoonful of strong ammonia water. If, after settling, the liquid remains uncolored, the soil contains abundance of lime and is not acid. If, on the other hand, the liquid turns dark brown or black, the soil is acid and lime should be applied. Varying degrees of acidity develop varying degrees of coloration, ranging from light brown, in cases of slight acidity, to nearly black, in the case of soils that are entirely acid. This test is useful only when the soil is rich in organic matter (humus). It is based upon the fact that the organic matter in the soil is insoluble in ammonia when combined with lime, but is readily soluble in the absence of lime.

Another simple test is to procure from any drug store a piece of blue litmum paper. Break open a moist clod and press one end of the strip of litmus paper firmly between the two portions of the clod. If it turns pink or red the soil is acid. The rate at and degree to which it changes color will give a fair indication of the amount of acidity.

Predicts Fish Will Cost High Price.

(Special Correspondence.)

ST. JOHN, N. B., April 29.—Stocks of fish in the warehouses are light and hardly sufficient to meet the demand from the West Indies, before the arrival of new fish. The Lunenburg fishing fleet has sailed for the spring catch and conditions point to very high prices for the first landing of bank cod. It is admitted by the trade that the price per quintal will probably be at $7 or over, the highest price ever paid to the Lunenburg fishermen at the opening of the season. Last year the price was opened at $6 and rose until at the end of the season it was a dollar higher. The average price per quintal during the past season was $6.50 paid for Lunenburg fish.

TIMELY ADVICE ON TURKEY RAISING

One Bird Per Acre is Most Economical Size of Flock.

HINTS ON CHOICE STOCK

Buy Thorobred Gobblers From Different Flock From Hens.

If the reader owns no turkeys but is desirous of commencing with them this spring, and intends to raise market and not fancy birds, it is advisable for him to select his parent stock from healthy early-hatched pullets of last year. The best way is to obtain these birds from a neigrbor whose flock is known to be healthy and well cared for, and select from these the strongest obtainable, reject any bird that shows signs of immaturity. Do not buy the gobbler from the same flock, but purchase a good thorobred bird from other sources, and do not be afraid to pay a high price for him. The male should weigh from twenty-five to twenty-nine pounds, and growers do well with female of fifteen pounds and upwards. As to breed suit fancy, tho many have a prejudice for the bronze variety. The bronze are more inclined to ramble than the other varieties, but they put on a little more weight on the same amount of food.

One Bird, One Acre.

Six hens would be ample to mate with your male, and it will need space to accommodate them, as these six birds should produce from sixty to seventy young turkeys, even if only one brood were hatched, and one brood is more profitable than two. Fifty acres will be needed for fifty birds for the very best results, tho as many as a hundred have been successfull raised on a tenth of that area. It must be remembered that a large part of a turkey's food consists of crickets, grasshoppers and other insects injurious to crops, and the wider the range the less food will have to be supplied by the owner. Another advantage gained by large areas is cleanliness. Dirt is death to turkeys.

Housing.

An open shed well protected from the north-west winds, and provided with suitable roosts, is ample for the parent stock, and if such be placed in the orchard it is probably the most desirable site. Enclose the orchard with woven wire fence, the strands being close towards the bottom. The fence should be some sixty inches high, and have in it a V gate with a wire on top instead of a steel bar. Anything like a rail or bar is nothing less than a provocation to a turkey to leap on to it, but a plain wire of the height mentioned is never attempted. In the corners of this enclosed space and in the shed place as many barrels or boxes as you have hens. Coal oil barrels will do excellently and should have hinged to them a door of rough boards, that can be closed at nights when necessary. The hens can be allowed inside the fence in the evening, to get a run on the grass, and as soon as they have gone to roost, the gate should be closed again to keep out the dogs. The hens should be fed lightly on one meal of oats and a little wheat daily, as much as they will pick up in ten minutes; but the gobbler requires two good meals a day to keep him in condition. In spite of the open shed the turkeys will be found mostly roosting in the trees, and it is well to leave them to do so.

Time for Hatching.

In the neighborhood of Toronto it would be unwise to think of hatching before the end of May or the beginning of June. The hens will begin to hunt up a nest some weeks before laying, and it is well to have barrels supplied with chaff before that period. Hay will also do as a bed. When the hens begin to lay collect the eggs daily and keep them in bran in a cool room where no stoves or radiators will cause jumps in the temperature. The cellar will not do as it is far too damp. These eggs should be turned and replaced every other day until setting. When the hens have been laying for some two weeks, it will be advisable to let them set, but before placing the eggs under them let them be on the nest for two or three days, as it usually happens that a turkey hen will lay another egg after commencing to set. Arrange the nests rather flat, so that the eggs may not roll to the centre and be crushed. Fifteen eggs is the right number to place under each hen, tho an exceptionally large bird may cover as many as twenty.

Keeping the Lice Out.

As lice are death on young turkeys and very weakening to the mother bird, it is advisable to dust the nest occasionally with pyrethium insect powder, and to supply the hens with a convenient dust bath. No food except grass is necessary while setting. In fact, it is difficult to persuade some hens to leave the nest. If they refuse to do so at reasonable intervals, they must be removed forcibly. Water should always be at hand. On the twenty-fifth day of incubation, give both hen and nest a thoro dusting with insect powder, so that the young birds start free of all such trouble. The nest should be examined from time to time, for broken eggs. Remove these and wash the others with luke warm water, making the nest clean again at the same time. This washing must be done carefully and the eggs wetted as little as possible.

Preparing for the Young Birds.

As soon as the young birds are hatched, the mother and brood should be removed to colony "A" shaped coops. There have the sides made of rough board, the backs being boarded up and slats nailed across the face some few inches apart. They are without bottom boards, and should be moved daily on short grass. The daily moving is most necessary. At three weeks old the young birds may be permitted to roam with their mother, tho if the weather is wet, it would be well to postpone her period of freedom. A good way to keep the grass short around the coops, is to feed sheep on it. They crop it very close, and are less liable to step on the young birds than cows are.

Feeding the Chicks.

For the first twenty-five hours after hatching do not feed the young birds at all. On the next day four or five small feeds of stale bread squeezed in skim milk, can be given. Gradually change this diet till the fourth day they are feeding on medium shorts dampened with milk. They should be fed on a board which should be thoroly scalded after feeding. Feeding on the ground is productive of black head and should be avoided. Dandelions, lettuce and spring onions chopped fine should be given occasionally mixed with the shorts. Good clean water in small dishes should be before them at all times, the water being changed constantly. At four weeks they will start to roost, and as they are then at large with the mother one meal of shorts in the morning and another of wheat when they come back to roost at night is ample. It must be understood that they are ranging widely at this time, the gate of the nesting enclosure being left open.

Sickness.

A sick turkey is usually better as a dead turkey, and the ax is a simple cure for all serious ailments. Black head is the most virulent disease among turkeys, but it can usually be avoided by strict cleanliness, especially when the birds are young. A study of the droppings will give certain indications as to the health of the flock. If perchance black head should attack them, it is well to discontinue raising turkeys on that land for three or four years. It is for this reason that turkeys are best raised in small numbers.

Winter Care.

The care of the parent stock in winter is most important. They should be well fed with a full meal of oats or wheat, or both, night and morning, and green feed, such as turnips or damaged fruit, should be given them from time to time. They must have an abundance of pure water and a bank of gravel at hand if commercial grit is not available. As soon as the snow is off the ground cut down to one feed a day.

In conclusion, I would not advise intending turkey raisers to start a flock by hatching the eggs under hens, the reason being that the hen will leave them at the very age when she should be trotting them round the fields on insect hunts. If he follows the directions given in this article the reader should have at thanksgiving a nice flock of plump birds that have killed out many of the injurious insects on his farm and which at very small expense to himself are reaping him a return of some thirty cents per pound.

A. C.

Feeding Brood Mares.

An interesting experiment carried out by G. L. Carlson in connection with the feeding of brood mares seems to show that oats are better than corn for breeding mares; that oats and bran are better than oats alone, that hay without grain is better than with grain, and that natural conditions on grass beat everything. The following table gives the results:

Feed.	Mares Breed.	Av. Age.	No of Foals.	Per cent.
Range feed.....	468	10.1	425	91
Grass in summer.	183	9.9	161	81
Hay, oats, bran.	208	9.2	147	71
Hay and corn....	398	8.7	195	49
Corn, bran, hay..	231	8.9	117	52
Corn, alfalfa, or clover	306	8.8	177	58
Hay, oats	418	9	284	68

CRY TO GO WEST AND HOMESTEAD OFTEN SHOULD BE DISREGARDED

Experience Does Not Always Prove That Free Land Pays — One Man Found It Cost Him Four Thousand Dollars on Return of Seven Hundred.

The question is often put to the writer: "If you had your chance over again, would you take up a homestead?" and the answer has always been emphatically "No!" There is no implication in this reply that homesteading would be a foolish course for anybody to take, as circumstances alter cases. There are undoubtedly some who have done well for themselves by taking up the so-called free land, but there are thousands of others who might have done better if they had stopped their ears to the voice of the western siren. To the poor man, with a large family, some of whom are at working age, the quarter section offers a healthy home and great opportunities of employing the family's labor to the best advantage, but to the young married couple starting with a few thousand dollars, or to the small capitalist of any description, the writer would say: "Beware!"

Free Land?

To begin with: Is a homestead free land? It is true that a payment of $10 entitles the settler to take up the land and commence his duties, and then his expense begins. To satisfy the government requirements, he is obliged to break ten acres a year for three years, to have twenty of these acres in crop at the end of the third year, and to put in six months of every year in residence. At the time when prairie homesteads were available at a reasonable distance from the railway, these duties were far from onerous, as land could be put into crop for under $5 an acre, and it was no hard task to break an acre in a day. But, it must be remembered that at that time the land was of no great value to the owner, even after he had received his title, there being still vast quantities of easily-plowed wild land in his immediate vicinity. It is true that some born under a lucky star had settled all unknowing on the site of future cities and reaped fabulous fortunes, and that others who had held on in bad times and in good reaped a reward as the frontier of civilization crept north and west from them. In actual farming, very few, indeed, made more than a meagre living.

Times Have Changed.

But the open prairie land is no longer available, except in isolated patches at vast distances from the twin lines of steel. Go 60 and 70 miles fro ma station and an occasional plot of open prairie can be found. The land that the government is offering is mostly willow scrub land or sandy wastes, eminently suitable for growing jackpine. Concerning the difficulties to be faced and the expenses to be incurred in making a farm from a wilderness of willow scrub, the following statements are understatements of actual experience and observation rather than overstatements:

A Personal Experience.

After some five years' experience of the Canadian west, and with some 11 years' practical experience of agriculture as a market gardener and estate superintendent, with a realizable capital of $1000 and an annuity of $600, keen land hunger, and a love of the wilderness, drove me into taking up a homestead. I chose without haste. Within ten miles of me was a thriving city of northern Saskatchewan, with a rapidly-increasing poplation of over 6000. The trail, as trails go, was a good one. The land in which I pitched was gently rolling, and had the advantages of a creek and a line of low, sandy hills on its boundary to shelter it. The soil was a rich, sandy loam, covered with several inches of decaying vegetable matter, and water was available everywhere within 12 feet of the surface; but there was grey willow everywhere. By going 20 miles further north, over an abominable trail there were a few sections of light-soiled prairie open to entry. The passers-by seemed much amused at my choice, and one ventured to say that he would have his land proved up and sold before I had mine cleared of willow stumps. He did, but as his quarter section fetched him less than $1500, he is not entirely to be congratulated. Neighbors were few, labor practically unavailable. The first year I built a house of logs some 24 feet square, with a rubberoid roof, and I put up a slab stable to hold a team of bronchos and my own excellent cow. Breaking and cultivating two acres of garden and slashing 28 acres of willow, young cottonwoods and small white poplar took up, with the erection of a fence round a seven-acre pasture, the whole of my first season. The second spring saw me with a band of five pony mares and three cows to look after, while a flock of 40 hens did their best to pay for the groceries. Fuel I had in plenty, water at my door, meat in abundance, for the expenditure of a few cartridges. Two years later I had 40 acres broken and 30 in crop, and a barn 60 feet by 35 feet, made of lumber and with a capacious loft. I had also 70 acres fenced with three strands of wire. Reads like an emigration pamphlet, does it not?

Homestead Cost $4000.

I totaled up expenditures and found that my homestead, not including losses of stock, and a loss by fire, had cost me over $4000 in time and actual cash. The returns during that period did not total $700. To effect these improvements I had borrowed money at ruinous rates. My wife's constitution was broken, and a trip to a better climate and civilization was imperative. At the time I took up this free land, many nice little farms, with their 30 acres broken, and suitable buildings erected, were purchasable nearer town, for $2000 and less.

Other Disadvantages.

I have said nothing about the disadvantages of scrub country, the flies that cluster on the cows' udders till milking means a mess of blood upon the milker's hands, of the perpetual need of making smudges, around which the cattle shamble and switch all day without feeding, of the terrible extremes of heat and cold, of early frosts and late frosts, of capricious markets, of grafting land agents. If I did publish the whole facts of the case it would stand a poor chance of being printed in anything but the foreign papers.

For all that I have said, I wish that I were back on that farm, where the loon laughs from the marshes, the partridges drum in the scrub, and the bronchos tear their fly-maddened flanks at full gallop thru the willows. It is just this yearning that leads men on to clear out waste places for the benefit of generations yet to come, that draws men overseas to bury themselves and their ambitions in the bush. As a plain business proposition to the man with a little capital, it is well for him to stay by his eastern farm, and work it to the best advantage on scientific principles; or, if he must go west, to buy wild prairie land near a railway station. If the statistics of homestead abandonments were kept as faithfully and published as widely as the entry statistics, it would cause a sensation.

A. C.

To Ship a Carload a Day.

The following table will be found very useful to truck growers of associations that desire to plant sufficient acreage to ship one carload per day. The acreage needed will, of course, vary somewhat with local conditions: Strawberries, 30 acres; beans (string), 25 acres; cabbage, 40 acres; potatoes, 30 acres; tomatoes, 40 acres; beets, 30 acres; lettuce, 15 acres; onions, 25 acres; turnips, 20 acres.

Useful Maxims.

Keep the cultivator down in the ground. It does not pay to skim the surface.

It is not playing the game to hitch two horses on to a three-horse cultivator, or three horses on to a four-horse. There is more money spent over wasteful squandering of good faithful horseflesh than there is in buying one horse more than you think is absolutely necessary.

Fighting weeds is not a handicap race. See that your start from scratch.

You may as well plant that windbreak right now and not think about it till next year. Next month will be too late.

Don't forget to keep those stamping, trampling, punching cattle off the grass.

If you do not care for hoeing, it will pay your lumber muscles to cultivate that strip of mangels early, and let it remain a week or so before the final preparation for sowing.

There is no smoke in Peter Tumbledown's backyard, but, of course, all your rubbish is cleaned up long ago.

Important Changes in Grand Trunk Train Service Effective May 3rd

The Spring change of time will be made May 3rd, 1914. Time Tables containing full particulars may be had on application to agents. 345

That Son-in-Law of Pa's

By G. H. Wellington