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whose dam gave 111.1 lbs milk in one day, 3
months after freshening. We are offering a few
young cows (2 years and up) bred to the above
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P. Cows.

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R. R. No. 7 St. Thomas, Ontarlo

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Ten females, all ages, one bull, 3 years old, owned by the David Rife Estate. The above stock have been placed in my hands for cale, and will be sold reasonable to anyone taking the lot. Will not be sold separate. For particuars, apply to

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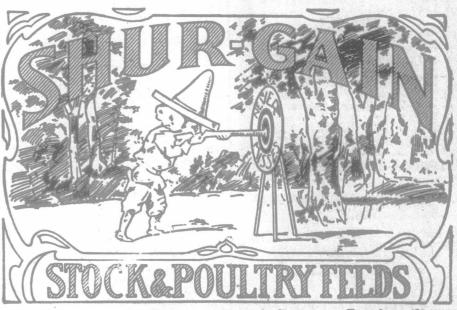
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Questions and Answers. Miscellaneous.

Hydro for Farm Purposes.

I note with interest the price hydro will cost the farmer per horse power. The question naturally arises: Will it pay the farmer to pay \$50 per horse power, as we know that a two-horse power will only do a part of our work? I admit two horse power may do our light work, but when it comes to sawing wood, you couldn't crowd your work, and it would be nowhere in grinding. You say with a ten-inch plate they ground one bushel of barley in ten minutes fine enough for cattle. This would be too slow for the average farmer. Five times the amount should be run through for the money invested. For lighting, I think it would do; also for a few other small jobs. You do not state how much the motor would cost the farmer. In my humble opinion the gas engine is more suitable up to the present, but, of course, with the advance of gasoline in price, the cost of operating naturally rises, as all gas engines, when in order, are supposed to consume one-tenth of a gallon per horse power per hour. But what I would like to have answered is the difference in a steam horse power and any other mechanical horse powers of 33,000 lbs., one foot of a lift to the minute, which, as I understand, refers to the lift of a cage in a mine. How do the steam engineers claim their surplus power? A steam engineer once told me that my engine, which is a twelve-horse gas engine, with an eight-inch bore, and a twelve-inch stroke, would develop nine teen horse power in steam, but to come back to the question of time, which is an important factor on the farm, I don't see that we can wait on the power that a two-horse motor would develop. . O. W.

Ans.—There is no difference in the standard horse power used in rating steam and gasoline engines. They are both rated in terms of mechanical horse power of 33,000 pounds, lifted one foot high in one minute. The difference in size of cylinder for steam and gasoline engines arises from two or three causes 1st. The average pressure throughout the power stroke is different in the two kinds of engines; and 2nd, in the steam engine the pressure acts on the piston, during both the forward and the backward strokes, thus the piston receives pressure practically all the time. In a four-cycle gasoline engine, however, the piston just receives pressure once in four strokes. The four-cycle engines are used almost exclusive,y for stationary purposes. Thus the piston of the gasoline engine receives pressure only one-quarter of the time, while in the steam engine pressure acts nearly all the time. From this fact alone, if the pressure in the two cases were the same, the steam cylinder could be just one ter of the gasoline cylinder, provided, of course, that the number and length of strokes were the same in the two. However, the pressure is not the same. In steam, it generally runs in the neighborhood of 100 pounds, although by heavy firing it may be increased. In the steam engine, the work would be 100 pounds working through four strokes, which is the same as 400 pounds working through one stroke. In the gasoline engine, the work would be 300 pounds working through one stroke. Thus, it would appear off-hand that the area of the gasoline cylinder should be 4-3 the area of the steam cylinder for the same horse power. In the argument thus far, we have assumed that the two engines were running at the same speed, and that the strokes were the same length. Now, it is a general impression that a twelve-horse-power steam engine will do more work than a twelve - horse - power gasoline engine. Probably the strongest reason for this impression is that the steam engine will take an over-load bety ter than a gasoline engine, and, consequently, pull itself through a severe trial better than a gasoline. The ability of the steam engine to take an overload arises from three facts: 1st. By heavy firing the steam pressure can be considerably increased, and, of course, the higher the pressure the greater the power. 2nd. The steam engine may be speeded up by adjusting the governor. 3rd. Steam engines are usually provided with a boiler of several horse power greater



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Herd headed by Count Hengerveld Fayne De Kol, by Pietertje Hengerveld's Count De Kol out of Grace Fayne 2nd. He has 13 daughters already in the Record of Merit and many more to follow. Junior sire,—Dutchland Colantha Sir Mean, by Colantha Johanna Lad out of Mona Pauline de Kol (27.18 butter) the dam of one daughter over 30-lbs. and one over 27-lbs; also the dam of the World's champion junior three-year-old for milk production. A few built calves for sale. E. F. OSLER, Bronte, Only the Colantha Strain Country of the Country of the

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Herd headed by King Johanna Pontiac Korndylas whose near dams and sisters, 12 in all, average 33.77 lbs. butter in 7 days. His eleter, Pontiac Lady Korndylas, has a record of 38.02 lbs. butter in 7 days. We are offering several females bred to this built also a few built calves.

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