Automobiles and Good Roads

A Department Designed to Help Farmers With Progressive Road Ideas.

IN AN effort to prevent waste of millions of dollars annually in the distribution of funds for construction of public roads Logan Waller Page, director of the office of public roads of the department of agriculture, has been making scientific tests to determine what materials should be put into the roads designed to meet different kinds of traffic. It has been found that more than $1,000,000 a day is spent on construction of roads. No estimate is made of the portion of these funds that is wasted, but it is believed to mount into the millions.

Efforts are being made to teach the country that the expenditure of large sums of money on certain types of roads may result almost in a total waste. A road built of materials which would be ideal in one locality may not serve the purpose elsewhere, and the money expended may bring scarcely any result in reducing the cost of hauling or making it easier for the farmer to get to the shipping point with his crops.

To aid the farmers who want to build their own roads and assist communities that desire to improve roads near by, the office of public roads of the department of agriculture has employed experts to test all materials and study their usefulness on roads subjected to certain traffic conditions. The office of public roads is acting in an advisory capacity to many states and counties, giving a practical form of national aid.

On roads where there is heavy traffic it has been found that certain kinds of materials are better than others and that while one kind of binder may not serve the purpose, another kind preserves the road indefinitely. Millions of dollars doubtless have been wasted because of the absence of the scientific knowledge.

"There are two ways in which the engineer may avail himself of the information necessary to a proper selection of road material," says Director Page. "The only certain one is to make an actual service test on the material under observation and under the same conditions of traffic and climate to which the proposed road will be subjected. This method is impractical except in rare instances, due to the lapse of time before definite results can be obtained. The second method is, by means of short time laboratory tests, to approximate the destructive agencies to which the material will be subjected on the road, supplementing this knowledge by a study of the results obtained in practice on material of a similar nature."

QUESTION OF BETTER ROADS.

As far back as 1776 Adam Smith, in his "Wealth of Nations," wrote as follows: "Good roads, canals and navigable rivers by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those in the neighborhood of the town. They are upon that account the greatest of all improvements. They encourage the cultivation of the remote, which must always be the most expensive circle of the country. They are advantageous to the town by breaking down the monopoly of the country in its neighborhood. Though they introduce some rival commodities into the old market, they open many new markets, to its produce."

Brings More Fine Stock Into State.

E. B. Marks, who already has a large herd of registered and grade Holsteins at his farm in the Ahtanum, has returned fro mthe East with a car load of new stock, 44 head of heifers, yearlings and calves, which he purchased for $9,000 at the dispersal sale at Lacona, N. Y. This is the fourth shipment of registered Holsteins brought into the Yakima Valley this spring.

In many parts of the west snow is leaving the mountains earlier than usual. Foresters say that this may mean a bad fire season, and they are making plans for a hard campaign.

Value of Machinery on The Farm

Writer Explains How Power Will Help With Chores and Routine Duties of Work.

Machinery of the right sort on the farm is perhaps even more important than the commercial or pleasure use of the automobile to the farmer. That is why we think the article herewith will be found more than well worth perusal.

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ONE of the big steps toward making life worth living on the farm is the introduction of machinery to help with the chores. A few of the chores that are now performed by machinery are pumping water, sawing wood, chopping feed, milking, separating, churning, washing, ironing, sweeping, cooking, lighting, sewing, mixing bread, making ice cream, grinding tools, cleaning grain, grinding grain, clipping, shearing sheep, currying horses; spraying, painting and making cider; in fact, almost every irksome job on the farm can be handled with some sort of mechanical power.

I know of one family that carries water a little over 16 rods from a spring to their house. They generally make three trips to the spring for every meal cooked, that is, nine trips each day, covering more than 288 rods. The family has used the spring since 1856, and during that time has traveled 18,396 miles, or three-fourths of the way around the globe, for water. If the carrier traveled one mile every twenty minutes, at fifteen cents per hour, this would mean $900 worth of time. It is about time that this family should use some power other than man power for carrying water. There is probably not a farm in Washington that does not have an equally undesirable chore that could be performed by mechanical power.

Six Forms of Motors.

There are six forms of motors in general use for furnishing power—the animal body, heat engines, water wheels, tidal machines, windmills and electrical motors. All of them can be used on at least some of the farms of Washington, and every farm has the animal as a motor.

This article is to deal with the motor best adapted to most farms for the performing of chores. Undoubtedly the electric motor is the best suited to this class of work, but unfortunately the electrical current would be so expensive in most localities that it is prohibitive. Wind power is rather uncertain, and is never steady, so it adapts itself to only a few of the tasks mentioned, but when it can be used, it is exceedingly cheap. Water wheels are, of course, convenient to but few farms. But the heat engine is one source of power that, like the animal, can be had on every farm, and it is the most uniformly adaptible to the kind of work under discussion.

There are two kinds of heat motors in use on the farm—the steam engine, and the oil or gas engine. Each one has its own particular field. In most localities in Washington, steam is well suited for the work that requires power for long intervals of time, and where considerable power is used. The oil engine would find its field in handling intermittent and small power jobs. It is the ideal engine for the farm chores, and is, of course, a close competitor of the steam engine in its field.

Reasons for Preference.

There are several reasons why the oil engine is more preferable for chores than the steam engine. One is that it can be started more quickly. You do not have to heat up the water. No power is lost after it is stopped. Stored heat is lost from the water in the boiler of a steam engine, and from the fuel in the grate. Also, there is little danger of fire, if the oil engine is properly handled; and less danger from an explosion, if handled by a careless workman. The oil engine will run indefinitely if left by itself with plenty of fuel. A steam engine must have an attendant to keep the water at the proper level, lest the crown sheet be exposed and burned.

The steam engine has the advantage of being able to furnish for short times as much as two and one-half times its "rated horsepower," though at the expense of economy. The gasoline engine cannot carry an over load, for it is rated at nearly its maximum horsepower, and it is most economical at near its maximum horsepower. If anything goes wrong with an oil engine, it stops at once; but with a steam engine, troubles generally come on gradually and can be remedied. The average consumption of an oil engine is one-fifth to one-tenth gallons of oil per horse power per hour. The coal burned under a steam engine is from four pounds to ten pounds per horse power per hour. So, if the cost of these fuels are known for any locality, the fuel expense can be determined. If we take into consideration the convenience of handling and the small danger, undoubtedly the oil engine is the best for small power on the farm.

Hints on Buying.

In purchasing an oil engine, it is very important to know how much power is required. Usually, it is well to purchase an engine a little more than large enough to carry the maximum load, for there is always sure to be something extra for the engine to do. An engine on the farm is just like the hired man. If he is willing there is always something extra for him to do.

There are so many types of engines that it is hard for one to make a selection. For instance, there is the two and four cycle. The latter is the most economical, but there are places where the two-cycle is quite satisfactory. Then there are the air, water, and oil-cooled engines. All engines must have some means of keeping the cylinder temperature low, or the lubricating oil will burn off of the piston and cylinder and they will be cut and ruined. There are the high speed and low speed engines, each adapted to a certain class of work—the jump-spark, make-and-break, and hot-tube ignition; the vertical and horizontal engines; the single and multiple cylinder; in fact, there are innumerable types and each type has its particular field.

In order for the farmer to determine which engine to buy, he should inform himself so that he understands the adaptibility of the several types of engines and appliances. If he makes a success of handling a gasoline engine, he must understand the principles and theory of the machine and its parts. Turning a machine over to see if it will start, is not running a gasoline engine. He must know what is liable to get wrong with the machine, and how to find the trouble. Generally it is a waste of time to take an engine apart because it doesn't run, and this is likely to cause more damage than good.

Good Boost is Given For Dairy Cow

THE milk produced by the average cow in a year, according to Prof. C. H. Eckles of the Missouri Agricultural College, will sell for about $50 at a creamery, or when made into first class butter.

A good cow of the dairy breed will make at least $50 cash income each year. Many farmers report a cash income of $50 to $100 a cow every year, and these figures do not include the income from the sale of calves and pigs fed on the skim milk.

"But," says one, "milking is a tremendous task." As a matter of fact it only takes sixty hours, worth 15 cents an hour, to milk a cow twice a day for ten months.

In a recent year the cash income from a herd of Jersey cattle on the Missouri college farm was $82.50 a cow for butter sold and $12.50 a cow for milk, skimmed milk and calves, making a total income from each cow of $95. The following year the average income per cow from the same source was more than $100 for the entire herd of twenty-eight.