THE EFFECTIVE USE OF FARM LABOUR AND EQUIPMENT IN EASTERN CANADA

THE shortage of good farm labour which has been evident for several years has caused many farmers to make major changes in their methods of farming. With the prospect of a further shortage of farm labour many farms may become "one-man" farms and others may have to operate with a reduced labour force. Under such circumstances there will no doubt be a considerable change in the methods of production on the majority of farms.

A large number of farmers are already working to the limit of their capacity, at least during the cropping season; thus it will not be feasible to make up for a shortage of labour simply by working harder. Rather the situation will have to be met through a more effective utilization of the labour on each farm.

Many farmers have successfully planned their farm operations and equipment requirements to make the most efficient use of their labour. This takes time and it is realized that any change incurring a large expenditure can only be put into effect as finances permit. However, on many farms, improvements can be made in the arrangement of fields, fencing, feeding facilities and operating methods with little cash outlay. A carefully planned farm program will go a long way toward getting the necessary work done with the labour at hand and often at a reduced cost. A decrease in working costs is the most likely means of providing funds for labour-saving equipment and farm conveniences. In increasing the efficiency of labour the following suggestions may prove helpful.

Plan a suitable rotation or sequence of crops.—A large part of the man labour necessary in the production of a farm crop is used during a relatively short period of from ten to fifteen days at planting time and a similar period during harvest. However, for different crops the peak-load of labour comes at different times. Therefore, if crops can be selected which will spread the labour as evenly as possible throughout the growing season, the available labour can be more effectively used; and one man can grow more acres of crop or a given number of crop acres can be handled by fewer men. The following mixed farming rotation may be cited as an example: 1st year—corn, roots, etc.; 2nd year—grain; 3rd year—clover hay; 4th year—timothy hay or pasture; 5th year—grain.

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This rotation allots two-fifths of the acreage to grain and one-fifth to hoed crops. The sod land to be ploughed annually is only one-fifth of the total acreage. It will be noted also that the root crop or corn follows a grain crop rather than hay. This arrangement permits after-harvest cultivation of the stubble land which requires less power and labour than after-harvest cultivation of sod land. In many instances, the stubble land can be handled with a cultivator or disk, thus saving time and labour. Where perennial weeds are present, after-harvest cultivation of the stubble land results in a great saving in man labour on the hoed crop the following year. Further information on rotations is available from the Field Husbandry Division, Central Experimental Farm, Ottawa.

Plan all work in advance.—The best farmers carefully plan all farm work for a considerable time ahead. It is true that some field work can be planned for only a few days in advance. Changes in weather may make replanning necessary from day to day, or even hour to hour. The advantage of a carefully planned program at the beginning of the year and a follow-up system to keep a check on the work from day to day is that it keeps before the operator the things that need to be done. This will help him to decide what to do first and to fit the various jobs together in such a way that the greatest amount of work may be done with the time and energy available. Unavoidable delays will occur with the best of plans, but without such plans the delays are certain to be much greater.

The most important farm operations with crops or animals are seldom overlooked. Much time may be lost, however, by not keeping careful check on the miscellaneous work, such as spreading manure daily, getting seed cleaned and treated, repairing fences and buildings, attending to seasonal live stock requirements and thoroughly overhauling and repairing tools and machinery. If these matters are not attended to in slack periods, rainy days or bad weather, they often conflict with the most important work at rush periods. Every miscellaneous job that could have been done at some other time means practically a waste of time at the most critical periods when every hour is of the greatest importance in producing or saving a crop.

Level-off peak-load periods.—Certain modifications of farming practices may be used to reduce the peak of labour required for various operations. It is true that a large part of the field work must be done at definite periods; that each of the planting, cultivating, spraying and harvesting operations must be done within a few days or a week of a definite date if best results are to be obtained. However, some latitude may be taken in the time of performing certain operations.

Seeding at different dates may be used to space the ripening period of crops. Barley will stand late seeding with less loss of yield than oats or spring wheat. Barley may be seeded two weeks after the land is considered ready for seeding without seriously affecting the yield.

Lodged grain crops are expensive to harvest. Lodging may be reduced by lessening the amount of manure applied on very fertile fields, and by eliminating the nitrogen in fertilizer applications and by the selection of improved varieties. Harvesting may be facilitated by the control of weeds in these crops. Information on the control of specific weeds may be secured by writing the Field Husbandry Division.

Haying operations may be advanced to prevent conflict with grain harvesting by cutting the hay early, particularly on fields where the aftermath is to be cut or pastured. The haying season may also be advanced by cutting a portion of the hay for silage, where facilities for ensiling are available.

Have a power reserve.—There is no point in having more power on the farm than is necessary; however, every endeavour should be made to provide as much horse or tractor power as can be used to good advantage during spring work. This period takes the greatest amount of farm power. No other period except, perhaps, that of fall ploughing, requires the maximum use of the power on a farm. Where extra horses are available they may be worked in shifts to speed up seeding operations. Insufficient power is frequently used on the field cultivator, disk and binder. An additional horse will permit the team to step out more freely, resulting in a larger day's work. On the other hand, it is possible to double up on horse power and to draw a harrow behind a disk or cultivator when soil conditions will permit.

Where the size of a farm warrants, a tractor will furnish the most satisfactory reserve power, since a tractor may be worked long hours and operated at night. The small tractors now available which range from about 10 to 13 draw-bar horse-power, provide an economical source of power for small farms. The medium sized tractors, ranging from about 15 to 18 draw-bar horse-power, are suitable for larger farms. The row-crop or general-purpose type of tractor is particularly adapted to farms with 10 to 15 acres of cultivated crops. It is recognized that tractor power has probably done more than anything else to enable farmers to overcome what would otherwise have been a serious deficiency in manual labour. Information is available in Bulletin 168, "Cost of Producing Farm Crops in Eastern Canada," on the normal day's farm work and the cost of operating tractors.

Suitable size of implements.—It is desirable to use large machinery units with larger teams or tractor power whenever practicable. The investment in farm machinery together with horse or tractor power on many eastern farms ranges from about $15 to $30 per cultivated acre. The purchase of a few items of larger machinery will in many instances more than repay the purchase price in the labour saved. As an example, with four horses on a two-furrow plough, one man can plough 3 acres of sod land per day as compared to only 1½ acres with a walking plough. On farms where two walking ploughs are normally used at the same time, one man can be released for other productive work during ploughing by the use of a walking or riding gang plough.

Similarly the size of other implements should be adjusted to fit available power. A five-foot spring-tooth harrow is a load for two horses and a five and a half foot cultivator is a load for three horses. A seven-foot drill is frequently an over-load for two horses. A nine-foot width of spike-tooth harrow is a suitable load for a team. A six-foot binder is a full load for three horses.

Harvesting equipment.—In hay making every effort should be made to increase the use of horse labour to permit the same number of men to accomplish more. Where hay is being stacked an inexpensive buck pole or sweep rake may be used to move the hay to the stack. Hay may be elevated on an inclined slide made of poles or an overshot stacker may be used. A combination stacker which combines the functions of a push rake and overshot stacker may be used to take hay from the windrow, swath or cock and place it on the stack.

Where hay is stored in the barn a hay loader may be used to advantage, particularly with a low wagon and basket rack which requires a minimum of load building. Slings or a hay fork will reduce the labour of unloading. A satisfactory low wagon may be made from used auto or truck axles, wheels and tires.

In harvesting grain the sheaf carrier should be used on the binder as much as possible to reduce carrying of sheaves in stooking. In many sections threshing from the stook will reduce the labour required. A minimum of labour is required for harvesting grain and clovers with the new small combine-harvester. The results of a survey of the small combine-harvester in Eastern Canada are available from the Field Husbandry Division.

The labour required to harvest ensilage corn may be greatly reduced by the use of a field ensilage harvester which combines the functions of a corn binder and silage cutter. Fifteen years' experience with this equipment on the Central Experimental Farm, Ottawa, indicates that it is an economical investment for about 30 acres of ensilage corn. The purchase of large pieces of labour-saving equipment may be undertaken by a group of farmers.

Miscellaneous work.—Machinery repair.—Considerable time and money is lost each year on many farms through thoughtlessness in the handling, care and repair of machinery. To conserve time during critical periods every machine and tool on hand should be put in satisfactory working condition before the machine is required. This work should be done in the winter when other work is not so pressing. A heated farm shop with sufficient floor space for one large implement will more than repay the cost of enlarging the door in an existing shed for this work.

Thoroughly overhaul each machine. Inspect all moving parts for excessive wear. Remove, clean and grease bearings. Sharpen cutting edges, straighten bent members, align working parts and tighten all bolts. Remove accumulations of grease and dirt. In painting, use red lead and linseed oil as a priming coat for iron and wood over which a good enamel paint of desired colour may be applied.

Fence and buildings.—Many steps may be saved by the arrangement of gates and fencing to eliminate unnecessary travel. Straightening of permanent fences is often desirable to facilitate working of fields and reduce waste land. The labour required for temporary fencing may be greatly reduced by the use of electric fence.

More careful planning of the yards around buildings and of the feeding and other facilities within the buildings will often reduce the drudgery of chores.

Farm conveniences.—Running water, household plumbing and electric light are conveniences found on an increasing number of farms. Where electric power is not yet available, a low-voltage farm lighting plant will facilitate work around farm buildings and farm homes as well as reduce the hazard of fire. A gasolene or electric operated force pump is a sound investment for winter watering of stock, fire fighting and a convenient supply of water for the bathroom and kitchen.

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