Controlling the cost of machinery:

Buy? Borrow? Or bring in a contractor?

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Contractors are able to spread the cost of machinery over a lot of acres and using one may mean the difference between you making or losing money but the decision is not straightforward as the costs and benefits are tricky to calculate.

What to consider?

For most machinery operations, whether it is making silage or ploughing, cost is often regarded as the main criterion. However, timeliness, quality of work, comfort and labour implications must also be taken into account.

Machinery costs

Machinery costs include fuel and repairs/maintenance and so-called 'fixed' elements such as depreciation and interest. Repairs and maintenance costs are notoriously variable and depreciation requires an accurate estimate of a machine's future value. To enable shrewd decisions to be made, job costs – which include all elements of machinery costs including fuel and labour, and are expressed on a per ha basis – must be calculated.

An example of a job cost for a ploughing operation is shown in the panel. The costs in this case are calculated using the Oak Park machinery cost programme*, which estimates machine repairs from the use level of the machine and depreciation from its age and use level.

Cost estimates Tractor and plough

	Tractor	Plough
Annual use	600 hrs	130 ha
Life (yrs)	20	15
Depreciation (€)	2725	985
Repairs/ Maint (€)	2272	726
Interest (€)	2185	525
Total annual (€)	7375	2277
Per hour (€)	12.29	
Machine cost/ha (€)	20.01	22.77
Machine cost/ha (€)	**42.78**	
Fuel cost / ha (€)	**15.64**	
Labour cost /ha (€)	**13.02**	
Total cost/ha (€)	**71.44**	

Timeliness

How quickly a machine gets through its work will determine how timely the work will be (leaving weather aside). This can be critical for a tillage operation such as combining where delays can result in harvest losses and higher grain moisture.

On grassland farms, silage harvesting and fertiliser spreading operations among others need to be done on time. With a contractor, job scheduling will impact on timeliness on individual farms. Putting a value on timeliness is challenging.

A delayed cereal harvest on 50ha could result in 5% crop losses and extra grain drying charges. Together these costs could reach €100/ha or more. Similarly, a drop in silage digestibility due to delayed harvesting will generate extra concentrate costs.

Quality of work

We frequently disregard quality in machinery operations, particularly when contractors do the job, and only focus on timeliness and price. Work quality can directly affect profit. Broadcasting fertiliser accurately over a 12m to 24m bout width, for example, requires a good machine design, well-maintained spreading elements, good quality fertiliser and an operator who sets and operates the machine correctly.

Inaccurate and uneven spreading will hit yields long before the tell-tale signs of visible crop striping are seen.

But whether we own or contract-in fertiliser spreading, do we check whether the machine, operator and fertiliser are going to ensure a quality spreading operation, or do we just select on price?

There is a quality aspect to all machinery operations – seedbed quality with cultivators/drills; accuracy with sprayers and slurry spreaders; compaction prevention with all heavy machines.

Labour and comfort

Mechanisation replaces manual operations and machines can make the operator's task more comfortable. Labour cost savings can be made, and efficiency improved where labour is in short supply.

Farmers will tend to view comfort in a very personal way; some valuing its benefits highly while others consider it pampering. What's most important is to calculate the impact of adopting a labour-saving or more comfortable machine option on production costs, before making a decision.

Ownership or contracting?

Where possible, the benefits should be valued to allow accurate analysis. Consider the following:

- **Scale:** Scale can have a huge impact on costs, particularly with modern high-capacity machines. Where the farm hasn't the size to justify a machine, using contractors can bring that economy of scale.
- **Labour and skills:** Labour is scarce on many farms, either on a busy full-time farm or a part-time farm with no full-time labour. Contractors can be an effective source of labour for machinery operations and can provide skills also. Conversely, where a farmer has good skills in machinery operation, and particularly machine maintenance, then he may be able to exploit this by operating older machinery inexpensively and utilising available labour.
- **Timeliness:** While machine ownership can result in good timeliness for individual operations, this is only economical if there is sufficient scale to justify the machines in the first place. While contractors must use their machines across many farms, good scheduling and matching machine capacity to the available work should result in satisfactory timeliness.

Sustainable contracting

While contracting generally provides a competitively priced machinery service, the viability of that service is occasionally threatened by severe price competition. Accurate costing information would ensure competitive and fair pricing and a sustainable business. More flexible pricing models are also needed. For example, if a farmer chooses to harvest high-quality early grass, then the price he pays should be greatly reduced as the work is off-peak and the yield low.

Other machine supply options

Having a very large farm or using a contractor is not the only way of achieving economies of scale in machinery use. Many farms already collaborate formally or informally in machinery partnerships, utilising the machinery and labour that they can supply cost-effectively.

On tillage farms, one farmer may utilise his tractor and his own labour to supply a ploughing service on his own and also on a collaborating neighbour's land.

His neighbour may then supply a tractor and one-pass cultivation/sowing unit. The key to these arrangements is to accurately cost jobs to ensure that all participants get a fair deal.

***Available on the Teagasc website.**

Avoid the pitfalls

TIPS

- **Inaccurate costings:** As with any other input, the costs and benefits associated with machinery must be carefully calculated to allow good decision making.
- **Personal views:** Personal views about machinery use frequently dominate decision-making. An analytical approach will yield better decisions.
- **Taxation impacts:** Frequently, in years where incomes are good, machines are purchased to reduce tax liability; however, with current tax allowances, there is little to be gained. You wouldn't consider applying more fertiliser to avoid tax!
- **Poor planning:** The purchase of an individual machine often affects other machines; a bigger implement may necessitate a higher powered tractor which may not be justified. All farms should have a mechanisation plan; all purchases should fit into this plan.