



**GENE
TALK**

Mark Young

Profit or efficiency

This column often refers to profit or efficiency when considering breeding objectives for sheep and beef cattle.

Typically, breeding objectives aim to deliver both but we need to understand the difference between these two measures of “improvement”.

Profit and efficiency are best considered in terms of simple arithmetic (mathematics for those of a younger generation). Profit is returns minus costs while efficiency is returns per unit of cost.

Does this difference matter? It matters depending on the costs of marginal gains in returns and is best illustrated by example.

A business is returning \$250,000 from \$160,000 of costs. Profit is \$90,000. You can think of “financial efficiency” as 250,000 divided by 160,000 which gives \$1.56 returned per \$1 of cost (see table). Several new technologies can change profit for varying levels of extra investment (cost).

Using Technology A increases profit but lowers overall efficiency (1.43 compared to original 1.56) while Technology B gives the same increase in profit but at an increased efficiency (1.59 compared to original 1.56). Obviously, rises in profit could come at such a cost that they are not worth contemplating. Technology C increases overall efficiency by cutting costs but profit drops dramatically. So if efficiency is the sole goal, profit could suffer.

The best way to consider the effects on introducing any technology is to look at

both profit and “efficiency”. Looking at one alone does not tell the whole story.

How is this relevant to sheep and cattle breeding? Our breeding objectives are dominated by traits that impact on returns, partly because it is very hard to estimate feed costs for animals at pasture. However, failure to consider costs of production might mean selection gains in productivity are delivering less efficient or even less profitable animals. We do factor in costs of production but we could do better if we measured traits more directly related to this.

“The sheep gut seems to suit the fodderbeet better and they do very well on it.”

Our challenge is to develop genetic evaluation systems that better explain genetic variation in profit and efficiency and, significantly, to get industry buy-in to use of measures of genetic merit based on these. Further research is needed to deliver new tools to help us do this.

All buyers of rams and bulls are urged to consider the impact of key costs on their farm production systems such as rising bodyweight of ewes and cows or animal health costs. It is not just about faster growth and increased product value.

The idea of profit and efficiency also comes into breeding in another way. The easy to measure (low cost of

measurement) traits are covered by virtually all breeders. Those that are more difficult or costly to assess are measured by some breeders but few measure more than one or two of these “extra” traits. Often they are the traits that deliver marginal increases in product value (eg carcass meat yield) or reduce production costs (eg lower animal health costs).

Basically it costs breeders a lot more per trait for these harder to assess traits than it does the easy to measure traits (eg reproductive rate, lamb growth or wool growth). Yet these extra traits can provide buyers with a fuller characterisation of genetic merit. So you should expect to pay more for rams and bulls with fuller characterisations of genetic merit.

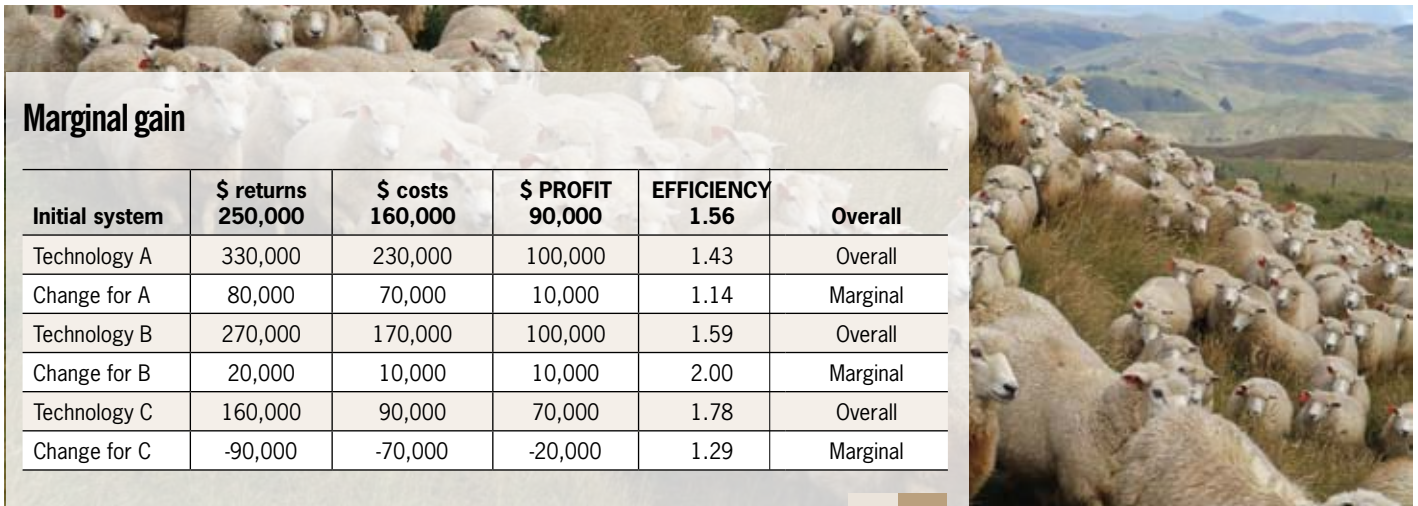
So back to the title question – Profit or efficiency? We want to increase both.

If you think farm profit and efficiency are important, make sure your ram or bull breeder knows this. Consider traits in terms of costs as well as returns when you make your purchases. Ask your breeder for genetic information focused on profit and efficiency such as the indexes used by SIL and Breedplan.

B+LNZ and SIL are interested in your views. Please feel free to tell us your thoughts by sending an email to silhelp@sil.co.nz or leaving a phone message on 0800-silhelp (0800 745 435).

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Marginal gain					
Initial system	\$ returns 250,000	\$ costs 160,000	\$ PROFIT 90,000	EFFICIENCY 1.56	Overall
Technology A	330,000	230,000	100,000	1.43	Overall
Change for A	80,000	70,000	10,000	1.14	Marginal
Technology B	270,000	170,000	100,000	1.59	Overall
Change for B	20,000	10,000	10,000	2.00	Marginal
Technology C	160,000	90,000	70,000	1.78	Overall
Change for C	-90,000	-70,000	-20,000	1.29	Marginal