



LOOK OUT FOR
 AHDB funding fallout **p18**
 Top tips for when selling a farm **p24**
 Dairy health improvements **p38**

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 against deadly predators

Livestock **p34**



Rugby star Tom Youngs talks
 tackle, tries and training

Farmlife **p71**



Beef focus farm: How cow size affects performance

By Michael Priestley

Running an efficient suckler operation hinges on the good management of an appropriately sized cow, which for Nottinghamshire producer Ian Willison means leaving room for flexibility.

Whatever the breed, Mr Willison believes cows can be too extreme either way and is enjoying success with a mix of Simmental and Blue genetics, which is helping to place the Williamswood herd near the top of national cow efficiency tables.

The cattle are hitting the mark, producing quality fat cattle and breeding replacement heifers to calve at 21-24 months.

And while Mr Willison acknowledges cow size and breed is personal and specific to farm location, management style and market orientation, his system targets first-calving weights of 500-550kg, progressing to 700-750kg.

"I think 800kg cows are too big, but depending on the system cows can be too small too," admits Mr Willison. "Even the few 800kg cows here spend a fair bit of their working life at an efficient size".

FLEXIBILITY

Market volatility, changes in the consumer and processor demands and Mother Nature can make a particular size of cow quickly uneconomical and irrelevant, says Mr Willison, whether around the 550kg or 800kg mark.

For this reason, he maintains a philosophy of never becoming "too extreme" either way.

FARM FACTS

- * 75 Simmental-cross Blue suckler cows
- * Lowland 80ha farm, including 40ha of reclaimed open-cast coalfield
- * Soil type classified as medium loam over limestone
- * 36ha permanent pasture – rest in leys and 8ha of maize

"Buying in stock and operating flying herds is different, but when breeding replacements it's easy to get yourself tied up doing the wrong thing," explains Mr Willison.

"I have found it's best to maintain a bit of flexibility in your cow size as if you're too one way or the other it can take a long time to change your herd and get where you want it to be."

Mr Willison rates Simmental genetics for being "varied and flexible", which has served the farm well over the years.

*** Having bigger cows can be a boost with a bigger cull cow cheque, but cull values depend on the market**

Ian Willison

"If you have genetically small cows and you need to play catch-up for bigger stores or finished cattle then it's hard, but with a 650kg cow you can manipulate size by feeding."

COW EFFICIENCY

An industry target for suckler efficiency is to achieve a calf 200-day weight that equates to 50% of cow weight.

The Williamswood bulls exceed this, and even though the heifers are slightly below, they still have an average cow efficiency of 48.2% compared with the AHDB average of 34.5% based on a 750kg cow, which is common in many herds, according to Harper Adams beef specialist Simon Marsh.

Farm data analysed by Simon Marsh shows Mr Willison's most efficient cow weighed 540kg and produced a calf weighing 365kg at 200 days to give her an efficiency rating of 65.9%. The least efficient cow weighed 865kg and produced

a calf that weighed 291kg at an efficiency of 33.6%.

"I would concede that more small cows work out with more calves within the 50% weight," says Mr Willison, who believes it is a "myth" that big cows produce bigger calves and calve easier.

"Having bigger cows can be a boost with a bigger cull cow cheque, but cull values depend on the market, whereas the performance of the cows should be more consistent," explains Mr Willison, who, with cow numbers up slightly, is able to cull out inefficient animals with stocking rates up to about one livestock unit (LSU) an acre.

"Up until now we've not been able to cull all the cows not hitting the mark," admits Mr Willison, who had to carry on farming some animals to ensure there were enough cows on his farm.

"But now we have numbers up and good information to work from, we can find the cows that aren't efficient and cull them – we are already bearing it in mind when we are choosing heifers to serve."

Big cows not doing the job have a big cull value and Mr Willison would rather cash them in than risk losing them or watching weight drop off through ill health.

Small cows, on the other hand, must not be small because of stunted growth, explains Ian, as this can be a "calving disaster".

"A small cow with big genetics is a nightmare. It is a major setback because she's not been fed correctly."

The Williamswood herd targets a pre-calving July BCS of 2.45, at a weight of 647kg. In April this drops slightly to 2.35 and a weight of 637kg when bull calves are weaned.

This is close to Mr Willison's target of maintaining a body condition score (BCS) of 2.5 year-round, which he says is made easier by calving cows "tight".

"I am firmly of the belief that maintaining that level through their lives is beneficial," adds Mr Willison. "I would rather maintain than look to play catch-up and over the years we've looked to keep the heifers



High daily carcass gains are key to profitability.

capable of a constant BCS of 2.5. I don't look at having fatter and thinner cows at different times of year."

He sees milk production is a "balancing act" when selecting cows and estimated breeding values (EBV) to maintain BCS.

Close attention is paid to 200 day growth rates, with cows needing the ability to yield milk and get it to the calf.

"Without milking ability you have to pay too much to feed your calf, but too much milking ability and you end up feeding your cow too much," says Mr Willison.

"It's vital the calf can get the milk from a sound milk bag, there's no point in sucking on half an udder. Generally, the Blues offer reasonable maternal traits for a terminal breed."

COW TYPE

Easy-calving cows and high daily carcass gains from small-to-medium-sized sucklers are key factors to profitability in suckled calf production.

This is the mantra of Mr Marsh, who has worked closely with Mr Willison charting the efficiency of his Simmental-cross Blue cows.

"As with any cross-bred combination, Ian's mix results in hybrid

vigour," explains Mr Marsh. "This particularly benefits traits with low heritability such as fertility and health, which are so crucial for the cow."

"Growth is highly heritable so this is influenced more by the choice of bull. The breed combination brings together a good fit between the Simmental and Blue. The Simmental provides growth, bone structure and milk; the Blue brings conformation to the marriage."

Additionally, Blue-cross cows frequently show very good milking ability, which Mr Marsh attributes as a "throw-back" to breeding the Blue from the Shorthorn.

TOP TIPS FOR COW EFFICIENCY AND MANAGEMENT

- * Keep cross-bred cows which have hybrid vigour that will "calve and conceive"
- * Aim for small to medium-sized cows weighing 550-650kg
- * For home-bred replacements select breeds and bulls with top maternal traits, especially milk
- * Calve replacements at 22-24 months old
- * Target 50% efficiency
- * Take the calf from birth through to slaughter
- * A key management tool is body condition score



Mr Willison aims for mature cow weights of 700-750kg.

TABLE 1. COW EFFICIENCY AND CALF PERFORMANCE

	AHDB		Ian Willison	
	Average	Bulls	Heifers	Average
Autumn calving herds				
Wean age (days)	278	229	295	262
Wean weight (kg)	345	374	366	370
DLWG (kg)	1.10	1.49	1.16	1.33
200 day weight (kg)	259	341	271	307
Cow wean weight (kg)	750*	633	640	637
Efficiency (kg calf/100kg cow weight)	34.5	53.9	42.3	48.2

Note: AHDB cow weight estimated

TABLE 2. 600KG V 700KG, WITH SAME OR INCREASED CALF WEIGHTS

Cow weight (kg)	600	700	700
Herd size (cows)	140	130	130
Calf wean weight (kg)	285	285	297
Gross margin/cow (£)	297	301	322
Herd gross margin (£)	41,649	39,118	41,915

even higher levels of hybrid vigour," says Mr Marsh.

"However, Ian has found the Simmental cross Blue cow put back to the Simmental bull is a winning combination for terminal and maternal traits, growth, efficiency and temperament."

600KG V 700KG COW

Research on beef cow size and stocking rate is finding that, in general, cross-bred beef cattle at 700kg cannot produce progeny with sufficiently heavy enough calves to compensate for the extra 8MJ/day of energy required for maintenance compared to a 600kg cow.

A model 100ha farm stocked at 1.4 LSU a ha would be able to keep 140 cows weighing 600kg, whereas herd size would have to be reduced to 130 with 700kg cows meaning nine fewer calves born a year.

Mr Marsh explains: "This calf

reduction will significantly reduce any potential gains from increased cull values from heavier beef cows worth an extra £2,531 (see table 2: £41,649-£39,118) for the 600kg cow.

"Keeping more cows would also reduce fixed costs per cow for the 600kg herd."

This is being shown in Ireland by Teagasc where the Derrypatrick herd is showing that bigger cross-bred beef cows of different breeds do not necessarily produce bigger calves.

However, Mr Willison's 700kg cows have been shown to be capable of producing an extra 12kg of calf liveweight compared with a 600kg cow, so combined with an increase in cull values this is worth an extra £26 a cow (£2.16/kg x 12).

Mr Marsh concludes: "In the model based on costings and performance of the AHDB non-SDA average suckler herd, this makes the 130 head 700kg cow herd more profitable by £266 (see table 2: £41,915-£41,649 = £266) due to heavier calves and cull cows even with a reduction in the number of calves sold.

"This is the first time this analysis has been done in the UK since previous studies have compared the performance of different breed types. In this evaluation we looked at just one breed type to compare the performance of big versus small cows."

"Similar findings have been noted with former beef focus farmer Simon Frost with his Limousin-cross Friesian cows put to high index Charolais bulls.

"We need more research into this area to provide a clear message to the beef industry."