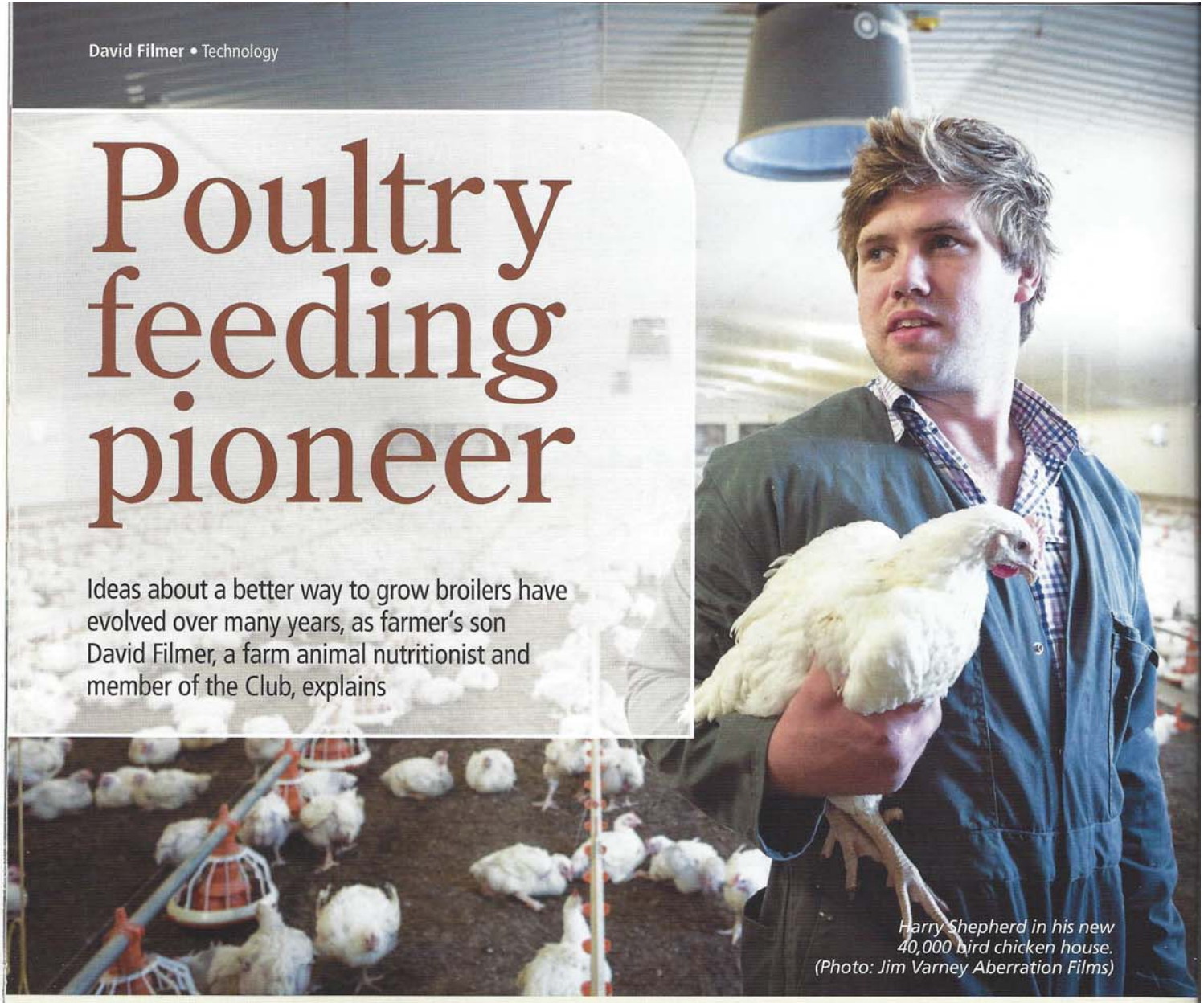
Poultry feeding pioneer

Ideas about a better way to grow broilers have evolved over many years, as farmer's son David Filmer, a farm animal nutritionist and member of the Club, explains



Harry Shepherd in his new 40,000 bird chicken house. (Photo: Jim Varney Aberration Films)

Harry Shepherd with his Ross 400 Club certificate.

TRAINED in animal husbandry and nutrition in the 1950s at the Kent Farm Institute, Wye College and Cambridge University, my involvement in livestock feeding systems goes back to the leading animal feed companies operating in the 1960s.

Knowledge from those various livestock sectors contributed to the development of a broiler management system that is now helping improve feed conversion and flock health, and boosting poultry farm profits.

With over 60 billion chickens raised globally each year, equivalent to 8 per person living, the potential to improve food security and sustainable intensification is clear – modern precision farming can bring real benefits.

The technology has been decades in the making. Indeed, older members may remember *Project 360* from Silcocks, the first computer feeding program for dairy cows, based on the old SE (Starch Equivalent) system. That was followed by Dalgety's Selectaplan, based on the replacement ME (Metabolisable Energy) system in the 1970s. Pig farmers got the first *Pig Grower* feed from Silcocks and *Ultraplan* from Dalgety, while egg farmers had the Milmoor plan and intake-based diet selection from the same companies in the same periods.

Today's system requires a simple retrofit to existing feed auger and lighting systems, but no feed or bird weighing, computers or internet connections. Instead intermittent lighting, integrated with specific mealtime feeding instead of ad *lib* feeding, is used with 24/7 monitoring of the house cross auger to identify how quickly birds eat each 'meal', so supply can be adjusted in line with the birds' age, breed, sex and genetic potential.

Protein key

Work on the approach started in the 1980s with a project between BOCM-Silcock and Harper Adams College. The idea was to shift from four feeds (Starter, Grower, Finisher and Withdraw), with stepwise cuts in percentage protein, to feeding birds a different diet each day, using high- and low-protein feeds from separate silos, automatically blended to gradually reduce protein.

It involved recording feed intake each day, to calculate the ratio of the two feeds, so the correct nutrient intake was delivered to grow birds along a predetermined growth curve.

After much R&D on customer farms, including some integrator R&D sites, a three year LINK award (LK0612) was obtained in 1998 from MAFF. The 2004 project report concluded: "combining these results with better regulation of feed intake gives improved performance". The report included a verification trial on an integrator's site, where four houses used our approach and four the normal approach. It gave over £10,000 extra margin per year per house of 35,000 birds (Table 1), paying back initial investment in a year.

Although successful economically, the system needed an extra silo at each chicken house and the farm manger had to enter mortality and feed composition into a computer, and regularly calibrate the automatic bird and feed weighers.

Pressure on margins in the 2000s meant labour cuts on poultry units, and the industry demanded simpler and less expensive equipment. Further research, with input from Bristol University, led to today's system, which achieves the correct daily nutrient intake by controlling feed intake per day using standard feeds, with no blending, and several distinct meals each day.

Results were similar, with substantially less manager effort and lower equipment cost, achieving return on investment in less than six months.

Natural feeding

Key to the approach is the fact that birds naturally fill their crops several times a day, so feed soaks, cell walls burst, and contents are digested more readily. Exploiting that brings better growth and FCR, with less feed protein excreted.

Nine international field trials, each with a minimum of eight houses of at least 25,000 birds and totalling 2.2 million birds, tested the new system in half the houses, with the others as controls. Table 2 shows the average and minimum benefits. Statistically, we are 97.5% sure that if installed and used correctly broiler growers can expect at least the benefits shown.

Recently Harry Shepherd, a former Harper Adams student new to broilers, achieved the third highest efficiency factor recorded (430) by the prestigious Ross 400 Club on his fourth crop using our system. Three of his 2014 crops topped 400, with Table 3 showing his December results.

The new simple version of Flockman is proving popular and has been exported to Thailand, Africa, Australia, Brazil and China. Indeed, Harry Shepherd and I have just returned from *Abu Dhabi's Global Forum for Innovations in Agriculture*, which had 4,000 attendees from 88 countries, and saw genuine interest from over 25 companies, investors and government officials in our innovation.

Commercial trial – 8 houses

Item	Control	Flockman	Benefit
Weight sold (T)	335	344	9
Feed used (T)	667	636	-31
Weight Value	£167,500	£172,000	£4,500
Feed Cost	£88,000	£86,000	£2,000
Crop Margin	£79,500	£86,000	£6,500
House margin	£19,785	£21,500	£1,625
Annual margin 6.5 crops/year	£129,188	£139,750 (35k birds/house)	£10,562

International trials (9 sites, 2.2M birds) (Results 36-46 day old A/H flocks)

Item	Average benefit	Minimum benefit
Mortality	1.01%	0.28%
Liveweight (g)	40	10
FCR	0.062	0.046
EPEF	17.6	11.0
Margin/bird (p)	4.32	3.14
Margin/house	£1,463	£1,053
Margin/house/year 6.5 crop cycles/year	£9,510 (35k/house)	£6,845 (35k/house)

UK Results: Harry Shepherd – Dec 2014

Days	Weight	Dead	FCR	EPEF
42.46	3.134 kg	3.81%	1.651	430

Age (days)	Final live/wt	Ross target	% target
33 (Females)	2.000kg	1.838kg	108.8%
41 (Females)	2.668kg	2.512kg	106.2%
47 (Males)	3.874kg	3.546kg	109.2%
Ave 42.46	3.134kg	2.856kg	108.3%

Flockman controller enclosure

Livestock nutrition enthusiast David Filmer

Club comment

David, who lives in Somerset, doesn't visit the Farmers Club very frequently, but has held several business meetings there. "Being at the very heart of London, it is a great place to entertain overseas as well as UK visitors, and we always enjoy the high quality, traditional British food and the excellent service and facilities available."

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