



CPANEWS

Advertising feature

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COST EFFECTIVE FORAGE

A special investigative report by Charles Abel

Livestock farmers must cut feed costs and big bale silage looks like being the key, thanks to its inherently lower cost of production and greater impact on livestock productivity.

Dairy, beef and sheep enterprises all face soaring input costs, far beyond any small rises in output prices. The NFU's Cost of Milk Production report proves the point. Feed prices jumped 16.6%, in twelve months, from under £180/t to over £200/t, putting an extra 1.43 pence on the average cost of every litre of milk produced.

The figures are grounded in reality, stemming from actual baseline costs for 809 dairy units and estimates from Kite Consulting, Promar International, Kingshay, The Dairy Group, Andersons and DairyCo. Surging grain prices and the inexorable rise of energy costs are to blame. Feed grain supplies have been squeezed by a Russian grain export ban, droughts in Europe, Canada and some parts of the USA, and increasing demand for food and biofuel production. At £185/t feed wheat was two-thirds more expensive last December than a year earlier. The July futures price is over £200/t. A price reversal is considered to be highly unlikely.

Bedding costs soared too, up by an estimated 19.8%, to over £115/t for barley straw and up to £90/t for wheat straw, as two harsh winters extended housing by up to seven weeks, and lower barley plantings and the rise of shorter-strawed varieties reduced supplies.

The net effect? The average cost of producing a litre of milk rose to 29.1 pence, 3.16 pence beyond the average price paid to farmers, cutting typical dairy farm net margins by 24% and putting a £330M hole in the sector's budget. Where feed was bought forward and milk is on a favourable contract, losses may be less. But many farms face greater losses. The picture for beef and lamb is little better.

"These stark figures reveal the very desperate situation on many dairy farms and won't be a surprise to the many farmers who are trying to make a living," commented NFU dairy board chairman Mansel Raymond. The question is, what can producers do? With output prices unlikely to rise significantly, the pressure is on costs - particularly feed costs. The heat is on to extract ever greater benefits from home-grown forage, reflected in the growing

value of traded silage, up from a typical £35/t to well over £50/t and a reported £60/bale in areas of extreme shortage this past winter. The trouble is that forage production costs are rising too, as machinery, maintenance, fuel, fertilizer, crop packaging and transport costs all rise. So where can farmers find any respite?



The key is to re-analyse the true costs of forage storage, with a keen eye on the typical waste experienced with each approach. Ensiled grass typically loses 25% of the total harvested yield to effluent, fermentation and respiration, particularly if a wide clamp face is exposed and feeding is slow. Baled silage, by contrast, experiences a fraction of those losses, with 5% being typical. Commercially-funded research at CEDAR, University of Reading, showing as little as 1% loss where extra layers of plastic wrap are used. That improved forage quality, and reduction in dry matter loss, can go a long way to making baled silage significantly more cost effective. But even at a simple cost of production level baling is now competitive with clamping. Capital and depreciation costs for a self-propelled forager costing £150,000 far outweigh those for a £22,000 high output round baler and £10-11,000 bale wrapper.

The soaring cost of energy taken to chop, cart and ensile silage cannot be ignored either. The FWi/NFU on-line input monitor showed red diesel averaging 63.37p per litre earlier this year, with the British Farmers Forum website suggesting up to 70p per litre delivered. That compares with 55p last April, 38p in 2007 and just 17p in 2002, representing



increases of 27%, 84% and a whopping 311% accordingly. Producing 1t of precision chopped grass with a forage harvester requires 1 litre of diesel, whereas just 0.5 litre is used to produce a silage bale of 800kg. The more costly the fuel, the more expensive clamped silage is becoming. What's more modern balers and improved netwraps mean denser bales can be produced, up from 3-400kg per bale in the past to over 800kg now. That goes a long way to cutting the cost of wrapping, transporting and storing each tonne of baled silage.

In the absence of an existing clamp, the logic for baling is strong, a maximum of £2,000 being needed to prepare a suitable bale storage area rather than over £20,000 for a 500t clamp. But even where a clamp is already in place, switching can pay. Tough environmental legislation is forcing more farms into expensive pollution controls to manage effluent, adding to the real cost of ensiled forage.

But costs into-clamp are not the end of the story. The real issue is the cost at the point of feeding, measured in terms of price per unit of energy or per unit of protein actually fed to livestock. When the typical clamp and feeding losses of ensiled forage are taken into account, baled silage really comes into its own. Research at IGER (now IBERS) showed the improved quality of baled silage could boost dairy herd performance by up to £12 per DM tonne of grass ensiled, and £8 for a beef enterprise.

Data from the 2011 John Nix Farm Management Pocket-book, produced before the latest fuel cost rises, echoes that. It shows the cost of big bale silage to be 0.46p per 1MJ of ME, hot on the heels of grass silage at 0.42p. That as-

sumes comparable crops of 10t/ha of dry matter, with total production costs, including growing, harvesting and storing, of £50/t and £46/t respectively.

The story holds true for beef animals too, according to research at AFBI, Hillsborough in Northern Ireland. It shows that finishing steers on low quality silage requires an additional 700kg of bought-in concentrate to finish at the same time and same carcass weight over a six month finishing period. "Research has clearly and consistently shown that improving silage quality is one of the most effective methods of reducing winter feed costs," it says. Baling can be particularly beneficial where small areas of excess grass are taken out of the grazing cycle, thereby keeping top quality grass in front of grazing cows. The flexibility of round bales also works well for buffering in the spring. Furthermore, if the bales are from low potash index fields, they can also play a valuable role in transition cow management.

The time is clearly right to look at the REAL costs of stored forage and to re-evaluate the benefits of round bale silage. The time could be right to make the switch and boost your livestock enterprise returns as a result.



Bad net cover



Bad net cover makes bad shape bales



Bad shape bales allow water to get inside film layers

Tama Marathon™ 4.2 km

A High Performance Netwrap

You Save: Time Money Waste



YOU NEED LONGER LENGTH NET!

High output baling demands high performance netwrap and nobody understands that better than netwrap experts Tama. Long gone are the days of 3,000m netwrap requiring a fresh roll to be loaded as often as once every 150-200 bales when producing 5ft bales of hay and straw, or once every 240 bales when producing 4ft bales of silage.

Today, leading UK farmers and contractors can turn out 260-330 5ft bales of hay or straw and up to 400 4ft bales of silage between netwrap reloads, thanks to novel technology enshrined in Tama's market-leading Marathon™ 4,200m Edge-to-Edge™ netwrap. What's more, as well as being 40% longer, Tama's Marathon™ 4,200m requires less downtime between reloads to deal with frustrating net blockages and splits, caused by net 'laddering' in the baler, thanks to enhanced net quality. It is an area where inferior products can significantly impair baler performance, cutting productivity, and putting crop quality at risk.

The shift to 4,200m netwrap is nothing new in the rest of Europe, and Ireland in particular, where 4,200m rolls have been embraced over recent years. Efficient producers in New Zealand and Ireland are even moving on to 4,500m rolls, delivering up to a whopping 360 5ft bales of hay or straw, or 430 4ft bales of silage. Now that's truly efficient baling!

The greater length is made possible by new plastics technol-

ogy from Tama, which uses special grade raw material polymers to achieve the greatest relative strength of any material used in netwrap manufacturing, explains Tama's Technical Manager Graham Robson. That makes for a tougher yet lighter netwrap, so 40% more can be carried on a standard sized roll, cutting the time spent reloading the baler. It also cuts on-farm plastics use and disposal costs, with 25% less plastic used for a given number of bales, which all helps to reduce the carbon footprint of the farm.

The longer 4,200m rolls are readily identified by the familiar striped "Zebra" colour scheme, as the net is part of Tama's family of patented Edge to Edge™ products.

Unlike many cheaper brands, Tama's netwrap uses a novel construction that allows it to cover the full width of the bale, so bales are tightly wrapped from edge to edge, ensuring easier handling, better film wrapping, easier stacking and better preservation of straw, haylage and silage.

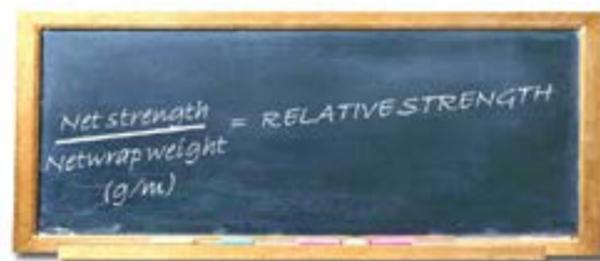
Avoiding 'fluffy' or soft bale shoulders in silage or haylage means less oxygen is trapped, reducing the risk of moulds, which have been shown to cut livestock intake and so suppress liveweight gain and milk output. A fully covered forage bale also provides a better profile for film application, so reducing the risk of 'hills and troughs' around the bale edge, which leave openings between film layers into which water and air can penetrate.

INNOVATION AND DEVELOPMENT: HOW IT CAN HELP YOU

Round Bale netwrap has been with us for almost 30 years, developed to speed up baling and offering to give better crop preservation results. It scored on both of these original aims, but it took some time before any 'innovation' was seen in the business, with the exception of a general acceptance of 3,000m as the 'standard' roll length in the place of the less economic 2,000m. In more recent years, we have seen the next great step forward in netwrap development. Called Bale+, this technology, designed and developed by Tama Plastic Industry, is the greatest advance in net manufacturing since the unique and patented 'Edge to Edge' technology (another unique invention from Tama) was unveiled 12 years ago.

Netwrap is manufactured from High Density Polyethylene (HDPE), a thermo-plastic resin produced from the chemical compound ethylene. HDPE is the most common 'plastic' used in industry, offering excellent strength and impact properties, the result of a 'cracking' process, where petroleum is subjected to intense heat, under strictly controlled conditions, to produce ethylene gas. The gas molecules then link together to form long chains of poly-ethylene, a semi-liquid substance that is then forced through a die to form 'strings' that, when cooled are cut into polyethylene granules. In technical terms, HDPE has a crystallised molecular structure, in a linear fashion rather than branching out that forms long chains of polyethylene, which provides greater tensile strength in the final product.

Traditionally, to achieve an increased strength in agricultural packaging, the product required use of heavier, thicker, material. This increase in strength comes at the cost of a heavier finished product. In the case of netwrap, however, the use of heavier threads, to achieve an increased strength means having to limit the length able to be wound onto the roll so as to maintain a suitable roll weight for ease of handling as well as achieve a roll diameter within specifications set by the baler manufacturers.



Alternatively, as some manufacturers have tried and discovered, it is also possible to produce a roll of netwrap with increased roll length, whilst still maintaining the correct roll diameter and a suitably 'comfortable' roll weight. However this option is flawed, as to achieve these parameters the

netwrap threads were reduced in thickness and weight, and with that their strength was correspondingly reduced, leaving these manufacturers with an unsuccessful combination of a long length net that was not strong enough. Clearly, not a good combination!



For a netwrap manufacturer to be completely successful, his product must be able to 'deliver' to the customer the greatest strength and greatest length available within the basic requirements of manageable roll weight, correct roll diameter and a net that works in the baler. This has been a target for many companies, all striving to achieve the seemingly impossible, which is to attain the greatest 'relative strength' value in their plastic production. This is a measurement used in plastics production of its strength against its weight, an easy to see indicator of the 'efficiency' of the ability of the producer to achieve the greatest strength from each gramme weight of raw material. The higher the relative strength is of the material, the greater the yield possible from the plastic. This efficiency allows huge improvements in product development, giving the manufacturer a choice to make material lighter for the same strength or to offer significant strength increases for the same weight, or anything in between. It is now easy to see how, by producing a high relative strength material, a lighter weight can be achieved, and still maintain the required strength; the main components of a successful longer length netwrap roll. Many manufacturers understand the benefits such a move can bring, but few fully appreciate the huge development required to achieve it. Hence there are a number of makes and brands of netwrap available that claim a longer length, but fail to admit that they are either considerably weaker than their 'original' formula or they simply wind on more length of the same material, making a seriously heavy roll, which is impossible to handle.

Tama's hugely successful Bale+ technology (which is the mainstay of the long length Marathon 4.2km Edge to Edge netwrap), is a combination of a highly developed HDPE polymer recipe as well as some very innovative manufacturing techniques, which have arrived at a product with a relative strength well in excess of early '1st generation' plastics still

used by many manufacturers. "It is now over 5 years since we started with the Bale+ development. It was a great leap forward, which needed a lot of field trials and research" comments Tama's Technical Manager, Graham Robson. "Many were keen to knock this as a gimmick, but its soaring popularity for the benefits the longer length rolls bring the customer, is a clear indicator that it is what the market wants. I believe our customers understand that we develop the product with their benefit in mind, more metres of net on a roll are far more important to them. The customer wants to buy metres of net, not kilos of plastic". Interestingly, during the development of Bale+, it soon became clear that Tama's

combination of new raw material and production methods actually delivered a plastic that is not only lighter, it is considerably stronger. These qualities allow greater baling efficiency for the end user as well as a net that is truly suited to the ever increasing bale weight and density that modern balers are able to offer.

Bale+ is clearly a success, as the lighter weight netwrap is now seen as one of the major leaders in the 'premium' netwrap market sector, the technology now also seen in major OEM brands of Premium 'Edge to Edge™' net.

TAMA TWINE 2011

Farmers and contractors looking to squeeze more from their balers, through denser and more compact bales, know only the best twine will ensure the right bale density, weight and shape is secured.

Using the best raw materials from ISO approved producers, the highest quality resins are extruded under closely controlled manufacturing tolerances to yield the finest yarns from which to create top class twine.

That is why Tama UAT, the long respected manufacturer of leading Edge-to-Edge™ bale netwrap, is bringing its entire range of premium bale twines under the Tama umbrella, to highlight its commitment to producing twine of exceptional quality and strength to the same exacting standards as its netwrap.

Significantly, Tama twine is made on machines from SIMA Group, the acknowledged world leader in twine production. With every spool branded as such, alongside a unique I.D. marking to allow full traceability throughout the life of the spool, guaranteeing security and support in the field.

"Tama has long made large quantities of bale twine. This year our twine brands, including the popular and well liked Hi-Yield twine, will be marketed under the Tama brand to highlight our commitment to quality across our entire family of crop packaging products," comments Sales Manager Tim Carr.

That all adds up to the best bale twine for the farmer and contractor. Costly downtime from 'hang-ups' in the baler and knoter mechanism are banished by Tama twine's consistent smoothness. Collapsing spool centres, which can make the first few hundred metres of twine difficult to draw, are avoided by using a large diameter spool centre so twine flows freely from the outset. And in larger bales knot slippage is avoided and optimum knot strength secured thanks to high twine fibrillation, guaranteeing a uniform and consistent twist.

"All our twines are produced to the same strict standards of manufacturing, quality control, service and supply as our market-leading netwraps, giving farmers and contractors the confidence of knowing they are buying into all that the Tama brand stands for."

It all adds up to a consistently strong message, says Mr Carr. "Tama branded products are the products of choice for farmers and contractors who are looking for professional crop packaging."

In a competitive and confusing market, with many spurious brands and makes of twine, Tama stands out for its quality.



**Trust your valuable crops
to Tama**

**High quality twine will help you to maximise
baler productivity**

- High strength and consistent
- Smooth running yarn ensures higher output

2011 STRETCHFILM, TWINE AND NETWRAP PRICING

Pricing for this season will, once again, be of huge interest and concern to us all. With the need to make many bales of silage, haylage and straw this season price increases are the last thing we all really needed, but are no more than most of us expected. Hardly surprising, considering raw materials are all oil based - Polyethylene for Stretchfilm and Netwrap production, and Polypropylene for Twine production. This dire situation is compounded with the Euro to Pound exchange rate continuing below €1.20. No surprise really!

So, what levels of increases are we likely to see?

The truth is we don't really know. Currently, Stretchfilms are expected to be up by approximately 12%, with Twines up similarly at 14% and Netwrap a more manageable 6%. The bottom line is that all products could be up by another 3 to 6% if raw material prices continue to trade at such high levels. It's not unusual for raw materials to rise and fall considerably throughout the year. The main problem is that most Crop Packaging Manufacturers are forced to use an average when calculating base costs; therefore the longer this high raw material pricing continues, the higher pricing is likely to be - it's as simple as that. And that is why no-one can be any more accurate in 2011 pricing predictions.

What can you do?

In truth exactly what most already do, make as good a job as you possibly can by maximising what you have and reducing wasteful losses. Make good quality, dense and heavy bales to achieve the best feed value from good fermentation. Use the best quality Netwrap and Stretchfilm you can buy, to ensure that your silage and haylage bales are well covered, thus reducing wastage and subsequent crop value losses.

Count your bales

Buying crop packaging is about getting value for money, not just buying the cheapest roll or pack. It might be assumed that what you buy is what you expect, but many have been caught out in the past. Things are often cheaper than others for a reason! Whilst it is easy to count the number of bales you can bale or wrap from a roll of Stretchfilm or a roll of Netwrap, it is not so easy to check this with Twine, as many balers have double-knotting devices, meaning some spools will run out before others. The fact remains that all crop packaging products are subject to these price increases, including the "not so good" value for money products. Please do your homework and choose carefully. Some products can have very misleading packaging, leading you to suspect a good deal. Buy the best products you can at the lowest possible price, from a reputable and trustworthy supplier. As we all know, if something seems too good to be true... it often is!

GRASSLANDS 2011

It's the year again for the big grassland event at Stoneleigh. Held over the 18th and 19th of May (slightly later than in previous years) the show is, without doubt, the highlight of the year for anyone with an interest in grass and forage production, collection and preservation.

As ever, your Crop Packaging Association will be in strong attendance, representing many of the industry's main suppliers of agricultural Crop Packaging Products, in connection with leading netwrap and twine manufacturer Tama Plastic Industry. Our 'headquarters' at the event will be Stand 454 in the trade stands area. Please come and see us, stop by, introduce yourself and see what we can offer you to (hopefully) help you and your business decisions. The CPA is recognised as the leading source of technical support and user information in this vital and costly part of your forage making business. There will be something to talk with us about, we are sure!

Once again, the CPA is running our popular FREE prize draw competition, with the lucky winner being drawn at 4pm on Thursday 19th May on the stand. The prize draw is open to all CPA subscribers and visitors to the stand. Simply complete a few simple questions on the competition entry card



to be in the running to win £1,000 worth of Tama's premium brand Crop Packaging Products. The successful winner will be able to choose from Tama's unique Edge to Edge™ netwrap, Novatex Winner™ netwrap, Rani stretchfilm and Tama-Twine™ products.

As well as the chance to discuss your Crop Packaging Products requirements for the year in your CPA stand, many of the CPA's recommended products will be demonstrated on the baling and wrapping plots throughout the show, working with the industry's leading baler and wrapper OEMs.

Let us all hope for good weather, as well as having enough time and an opportunity to sneak away from your own silage foraging tasks for a day or two in May.

We look forward to seeing you at stand 454!

CPA Technical



SO YOU THINK YOU KNOW NETWRAP...?

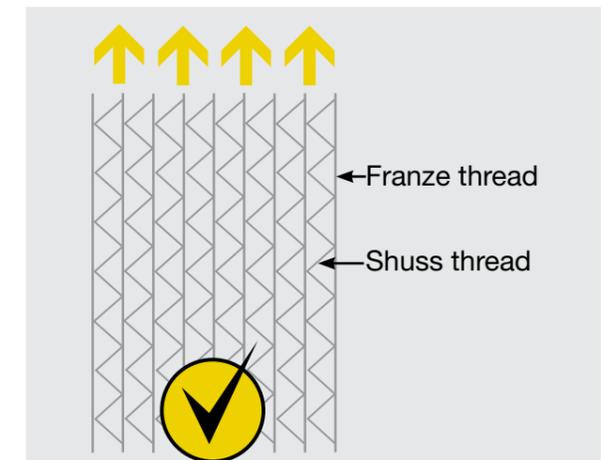
It has been estimated that every year in the UK as many as 22 million round bales are made using netwrap. By any measure, that is a lot of netwrap! It has been around for over 25 years, so many of you are more than familiar with net and how it works, but there is more to it than that.

There has always been a lot of misunderstanding or, more accurately, misinformation about netwrap. By design, netwrap is very flimsy in appearance and feel, but it is manufactured to withstand the considerable pressures it endures during use and afterwards, from the baler as well as containing dense and, sometimes, explosive crops. One common misconception is the 'weight' of the net and how this is measured, often incorrectly referred to as 'gauge', when what is really meant is the grammes per metre weight (g/m). Even so, the 'weight' of the net does not give any indication of the actual strength of the netwrap. Netwrap strength can be affected massively by the quality of raw material and accuracy of extrusion and manufacturing, and it is often the case that a producer quoting a higher 'weight' (g/m) type of net is doing so as this may be the only way to achieve a given strength. In doing so, of course, this producer becomes restricted on either roll length or roll weight, unlike newer technology such as Bale+.

Incorrect or misleading information about netwrap can create confusion in the market, which can have a serious effect on the performance of the net in your baler as well as seriously affecting the quality of the bales you produce. Often, demonstrations on how 'strong' a net seems to be are shown by pulling the net apart in a sideways direction, which, because of the construction of all netwrap, will always result in the net tearing apart. This is quite wrong. What should be understood by everyone is that the strength of any netwrap is in its 'running direction', along the heavier strands that go around the bale. The lighter 'zig-zag' threads are simply there to hold the heavier threads in place and offer no supporting strength to the net.



In the information that follows, we have tried to summarise some of the main points in netwrap construction, which we hope will offer some advice on what to consider, or what to dismiss as 'mis-information' when choosing your netwrap for this season.

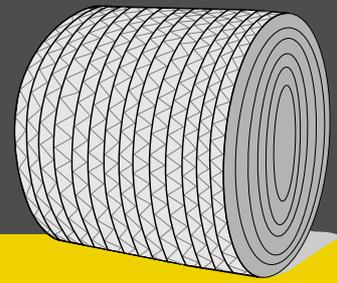


Netwrap is manufactured with long 'Franze' threads (the heavier threads) connected by 'Shuss' threads (the cross threads). The strength of the net is carried by the Franze threads, the lighter shuss threads are only to hold the Franze threads in place. All of the heavy 'franze' threads are acting together give the net its overall strength.

Care should be taken when choosing nets which include single coloured threads, as some makes and brands may use a different material to the rest of the net for the identifying coloured thread. Single coloured threads within a netwrap are a mark of identification from the manufacturer. Coloured threads are not related to any higher strength or better spreading ability of the net.

Any different material may cause problems in the baler, by causing a 'high spot' on the net roll profile. This can be problematical in balers where the net sits in a box, with the roll turning on itself - with greater pressure on the 'high spot' creating excess friction that can easily break the net.

CPA Technical



A net constructed with cross pattern 'shuss' (zig-zag) threads within the net, either in the centre or on the edges, does not offer any greater benefits in strength and is simply a manufacturer preference during production.

As we have seen, the strength of any netwrap is in 'running direction' and is carried by the heavier Franze threads, adding extra 'shuss' threads in the net does not add to the overall strength of the net in any way.

Understanding more clearly the properties and characteristics of netwrap should help you more in your purchasing in the future. This season, more than ever, wise decision making will become more critical than ever. Choose wisely and buy the best quality – you know it makes sense! Remember, there is a very true old adage that says ... "buy cheap – buy twice".

Think what it means and remember, your Crop Packaging Association is here to help you with any queries or questions you may have. We are always happy to hear from you ...

winner
Premium netwrap for
your Premium crops

PANI WRAP
Bale Wrapping Solutions

Pani
PANI PLAST



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