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Enviro profile really counts now

Report by Charles Abel

Farmers and contractors want to meet their environmental obligations by reducing the impact of plastics on the farmed environment. One manufacturer is leading the way.

CALLS for agriculture to cut the impact of plastics on the environment are bearing down on farmers and contractors alike. Fortunately, the world's leading maker of bale netwrap and twine has been busy innovating, to ensure the crop baling products farming depends on have the best environmental credentials possible.

"As farmers ourselves we know the land is everything and we're fully committed to minimising environmental impact with every means at our disposal," says Graham Robson, European Technical Manager for crop baling specialist Tama.

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"It's a core objective of all we do," stresses Mr Robson.

"It's not just one aspect of the business, it is THE headline issue we have been working on tirelessly for years."

Global R&D success

Whilst most suppliers of crop baling products stood still, Tama has consistently stepped up its environmental focus over the past decade-plus. Its global R&D department sought novel solutions and in 2009 introduced the first of a sequence of huge steps to make its netwrap and twine more environmentally-friendly. Other suppliers, by contrast, did almost nothing.

Farm-grown solutions

True to its ethos of developing farm-grown solutions the firm has spent many years ensuring its products help farming deliver on its environmental responsibilities. By investing heavily in R&D it has established itself as the world leader in environmentally responsible crop baling products.

"We understand the valuable role our products play in agriculture, which is why we have been determined to do all we can to improve them," says Mr Robson. "All the R&D paid off, with products that are second to none in supporting a healthy environment."



Technical advances are helping contractors and farmers use less plastic in farming – whilst still getting maximum benefit from the world's leading netwraps and bale twines.

The company's strategy has three strands – using less plastic to produce high quality products, developing more environmentally sustainable manufacturing processes and supporting efforts to collect and reuse waste plastic. Better manufacturing processes, using improved plastic blends, and recycled plastics where appropriate, have already cut plastic usage significantly. So, for the same number of bales, a farmer/contractor will typically use up to 30% more plastic if still using old, traditional types of netwrap or twine, says Tama. More environmentally benign manufacturing processes include the use of renewable solar energy, whilst a target of zero waste during production is close to being met.

Less plastic, better netwrap

Bale+ netwrap led the innovation pathway. By developing a new blend of higher grade raw materials, which is unique to Tama, and then adding a new element to the manufacturing process, before using its own patented net-knitting process, the amount of plastic needed to bind a bale was typically cut by up to 25%, explains Reuven Hugi, R&D manager at Tama.

Bale+ was further enhanced with technologies to give better net feeding into the baler, better adhesion to the bale, and Mesh-Lock (see below), to culminate in the present day TamaNet+. Significantly, it weighs in at just over 9g/metre. Netwraps from manufacturers using old technologies, weighing almost 12g/metre, use over 30% more plastic per metre. "Generally speaking, we're still using the same length of net per bale, and still getting the same quality of coverage, or slightly better, but using far less plastic," explains Aviv Tron, Netwrap Product Line Manager.

R&D brings stronger netwrap

Crucially, thanks to relentless R&D, the new netwraps are actually stronger, despite less plastic being used. That is in sharp contrast to some older technology 'traditional' net types, which are less strong, and require up to one extra wrap to hold the same type of crop.

The Bale+ changes also allowed roll lengths to be increased by up to 50% compared to 'standard' 3000m rolls, so more bales can be produced per roll. So balers need re-filling less often – good news for work-rates.

Edge-to-Edge TamaNet+ has also been enhanced, following collaborative work with baler makers, to ensure the best-made bale possible, again with significantly less plastic used.

Mesh-Lock

The very latest development is Mesh-Lock, a new method of knitting the net, that stops it splitting due to a 'running-ladder'.

"The benefits of this are seen every and any time netwrap is used," says Mr Robson. "Broken threads caused by a poorly cut netwrap end, from the previous bale, can easily be pulled by feeding rollers – so beginning the 'running-ladder'. All other nets still run this risk, potentially wasting netwrap and crop, because they are not made the Tama way."

Traditional heavy, bulky netwraps from many other manufacturers offer no such benefits, and may even require an extra turn to hold the bale. "They continue to put a heavy burden on the environment, producing more waste, which all needs collecting up after use," Mr Robson notes.

Up to 45% less plastic

The benefits of Tama's many years of R&D are particularly obvious when high-density 1.5-1.8m cereal straw bales are made. Cereal crop bales of this diameter exert great pressure on any netwrap, traditionally requiring 4 - 5 wraps. But with TamaNet+ Royal, thanks to the decades of built-in technology, just 2.5 wraps are needed. "That's up to 45% less plastic per bale, equivalent to 1km less plastic for every 100 bales," says Mr Tron.

Better twine, less plastic

Where netwrap led, twine has followed. Major investment in manufacturing facilities, especially in Europe's biggest twine factory in Hungary, means the 5-segment TamaTwine+ range now uses around 25% less polypropylene, explains Talmi Izvori, Twine Product Line Manager at Tama.

The 5-segment range, itself introduced to ensure the right twine is used in the right crop or baling conditions, is manufactured with far greater consistency, using an enhanced blend of raw materials and finer tolerances, so



Where does your used farm plastic go? Tama has invested heavily in reducing the amount of raw material used in its netwrap and bale twine, and fully supports farming's recycling efforts.

That's up to 45% less plastic per bale, equivalent to 1km less plastic for every 100 bales.

Every farmer and contractor can help improve the environmental image of crop packaging plastics.

strength is maintained, but weight and twine diameter reduced, further enhancing its performance in the baler's knotting mechanism.

In simple terms a competitor twine requiring a heavier, thicker twine would be more than matched by the appropriate segment twine from the TamaTwine+ series.

Old-tech competitors

Old-fashioned bulky, heavy twines, based on old manufacturing technologies, not only put more plastic into the environment, for the required strength, but are more prone to knot slippage, since knots struggle to hold the sheer bulk of twine.

A further downside of heavier twine is that, due to limits on spool dimensions, fewer metres are possible on the spool, compared with TamaTwine+ series twine. With less twine length on a spool those competitor twines need re-loading more often during baling, use more product packaging, pallets, pallet wrap etc for the same number of bales baled, and take more space to transport. "That all adds up to a greater environmental footprint, which is what we are trying to reduce," says Mr Robson.

Collection schemes key

Significantly, the HDPE, PP and LLDPE plastics used in netwrap, twine and stretch-film are all recyclable, one-way-or-another, comments Mr Robson. So collection schemes are important.

By helping to halt the costly practice of sending used plastic to landfill, or burning it, they offer farmers and contractors a simple way to meet their environmental obligations (see panel 3). Tama is fully supportive.



Storing used netwrap, bale twine and other farm plastics correctly makes recycling much easier, helping reduce each farm's environmental footprint.

"These days farmers do need to be managing their plastic waste more responsibly," Mr Robson advises. "Too often it is too haphazard, which makes it really difficult for any recycling service to handle."

Productivity key

Finally, it is worth recognising the important role of productivity. Keeping baling operations running in optimum conditions, before the weather threatens crop quality, means more final output per bale produced.

"If it takes 20 minutes to change twine spools, that can be 20 fewer bales produced, which is particularly relevant if the weather is closing in. That's lost income for a contractor and potentially lost bale quality for a farmer," says Mr Robson.

Similarly, bales covered better by better netwrap suffer less from weather damage or crop deterioration. That means more animal feed or bedding per bale, producing more liveweight gain or milk per unit of plastic used in the baling process.

Whole chain thinking

Such a whole-chain way of thinking is already being adopted in Europe, where some cheese production protocols now stipulate the approach to grass

baling and storage, as well as the species mix involved and its husbandry.

Crucially, Tama's commitment to helping farmers and contractors meet their environmental responsibilities is ongoing, with R&D continually seeking ways of giving farmers the crop packaging products they depend on – backed by a world-leading focus on the environment.



Plastics in farming

The plastics-in-the-environment debate isn't a war on plastics, but a war on plastic waste. Plastics are essential to the productivity and efficiency of UK farming, with agri-plastics accounting for just 3.5% of total UK plastics use.

Currently, only 25% of farm plastic (other than original product packaging) goes to recycling. New schemes aim to help farmers and contractors meet their environmental obligations and deliver a valuable feedstock for recycling, as part of the circular economy, explains Mr Robson.

Similar schemes are already running in Europe. Ireland's national collection scheme, IFFPG, started in 2001 and collects 71% of relevant waste, admittedly with legislative support. Similar progress is being made through voluntary schemes in France and Germany.

Economies of scale should mean collection costs fall from the current £120-200/t. The target is for 80% of the UK's 44,000t of agri-plastics (other than original product packaging) to be collected for recycling within five years.

On-farm action

Every farmer and contractor can help improve the environmental image of crop packaging plastics. Collecting and storing waste plastic after it has been used, and the packaging it arrived in, is key.

"When collecting waste plastic aim to keep it as clean as possible," says Mr Robson. "That's not easy with netwrap, which can have crop residues tangled into it. But the cleaner it is going into storage, and the cleaner it is kept in storage, the better."

Store different plastic products and packaging separately, he adds – twine, film, netwrap, cardboard packaging, roll inners etc. Don't mix. In particular avoid adding other plastic/non-plastic items - it's often the wrong type of plastic. For recycling to work the quality of waste collected has to improve.

Very high levels of contamination mean agricultural plastic waste currently has very little commercial value without thorough washing. Facilities are being established to do this, but farmers and contractors also need to play their part, by segregating and storing plastic waste correctly. Research is looking at novel ways to clean farm plastics, including the use of enzymes to degrade organic matter, including crop residues.



Enviro-friendly

- Targeted since 2008
- Understanding farming helps
- All products now greener
- Raw material blends key
- More strength = less plastic
- Netwrap - 20-45% less plastic per bale
- Twine - 25% less plastic per bale
- Better-knotting twines
- Faster work-rates
- Improved livestock performance
- Recycling-friendly plastics

See: www.tama-uk.co.uk

Green vision

- Zero manufacturing waste goal
- More recycled plastics used
- Renewable energy for factories
- Collection schemes supported
- Industry initiatives supported

Recycling tips

- Start a system now
- Keep used twine, netwrap and stretch-film separate
- Remove crop residues if possible
- Store in contaminant free area
- Plan for recycling collection

Farm plastics challenge

- UK goal to collect 80% of 44,000t agri-plastics in five years
- Whole supply chain involved – farmers, contractors, suppliers
- Two UK recycling schemes: APE UK launched Dec 2019
UKFPRS launched Jan 2020
- Full UK coverage
- Schemes in Ireland, France & Germany well ahead

Saving time

Name:
Mark Jackson
Jacksons Haylage,
just outside Manchester

A reliable netwrap gives Mark Jackson from Jacksons Haylage more time to concentrate on growing his products

An eye for detail has helped Mark Jackson build up his haylage and silage business.

Listening to his customers has helped him to find his place in the market and develop products that keep them coming back for more – and telling their friends.

"People have come to realise that the product we are selling to them is better than a lot of other products they can get," he says.

But it is his attention to detail that ensures that those products are of the highest quality – for example, looking after the ground to prevent soil contamination and keeping a constant eye on weeds. "Because customers don't want any weeds in their feed," says Mark.

This time spent looking after their product is an investment. What you don't want to be doing is wasting time dealing with broken wrap.

"We got a McHale baler 12 years ago. We tried a few net products but we were on and off the tractor all the time because they were either breaking or they weren't covering the bale correctly so there's grass falling out. We found that the cheaper net didn't pay off because we ended up putting more on, and we were wasting time.

"Going on to the Tama products was so much better. You get a roll of net, put it on the baler and away you go. You don't touch it until it's done and then you put a new one on. There's no breaking, no slippages on the side of the bale, nothing. It just goes fully on the bale, covers it edge to edge and it's absolutely great then for when we're wrapping it."

Mark uses JD Xtranet 4500m on his McHale to create roughly 2,000 bales of hay and haylage and 6-800 bales of silage for a second cut. "Virtually all of it has a name on because we sell all year round, not just in the winter. We have customers who are short of land – horse owners, for example – who need feed all through the summer as well."

Mark and his wife have been round-baling for more than 35 years but turned to it full-time in 2003 when milk prices left their dairy farm, just outside Manchester, unsustainable.

"We looked at what we could do with the farm and looked to turn the grass into a product to sell.

"It's like any business – you've got to evolve with what's happening. We got a bit of a break – we own all of our own ground, 170 acres, and we saw an opportunity to get into it.



"We gradually built the business up over a period of time to get to this point of solely doing the bales and the haylage sales. It's the best thing we've ever done. Me and my wife – with some help from my son in the summer – manage it very well. We don't have to get outside employment, it's easier to do."

Mark and his wife – who are both from farming backgrounds – were able to use their skills and experience to create the product but, crucially, listened to customers to ensure they met their needs.

Mark says: "We've got 70 years' experience between us of trying to get a product that people want but it has been a learning curve as things have changed – we've gone from supplying just farms to supplying more stables. They want a different product from, say, cow people.

"We have also for a few years tailored for farms with a second cut. The learning curve has come but the experience has helped us develop products that people want. We knew what we were doing but we were still learning the market every day."

The business has grown successfully with little marketing and no social media – just word of mouth and loyal, happy customers.

But there have been difficult times and Mark is grateful for the support that Tama has shown them, as in 2017 when they almost lost a whole crop through spoiling.

Today, the Covid-19 pandemic is creating huge uncertainty for businesses and industries around the world.

But animals still need to be fed and Mark's business – run entirely by people within his household – is providing an essential service, safely, that his customers greatly appreciate.



Tied in knots

Jonathan Coleclough
Regional Technical Manager for Tama UK

With a background in contracting, machinery manufacture and operation, 7 years' experience with one of the larger baler manufacturers, and I tend to lean towards logic and reason when looking for answers. I joined the Tama UK team in 2018 genuinely believing that I had a good understanding of all aspects of the baling process, little did I know how much I had to learn. While I have spent many hours baling all types of crops in varying conditions using many different balers over the last couple of decades, I had never taken the time to look in detail at the crucial role that Twine plays in the baling process. It is the keystone that supports all the work done up to the point that the bale leaves the chamber. All the necessary handling, stacking, transporting that comes after can only happen if the twine continues to perform.

Historically, selecting the highest performance twine has not been easy, with consistency not traditionally being a word used when talking about baler twine. It was not unusual to have to change twine as the crop or conditions changed. This often meant sourcing a progressively thicker twine until the twine was so thick that it caused more problems than it solved, not tying, knots slipping, damaging knotters, etc. This trial and error method is less than ideal, causing a lot of frustration, downtime and damage during a time when the pressure is on and there is no time to study the problem. Once upon a time the number 7200 related to the number of feet in a pack, however, the manufacturing limitations that made this number relevant are a long, long way behind us. In fact, there are very few applications where a twine this short is even necessary. To confuse things even further, some products are sold by weight, kgs per pack, which is no indicator of length or performance.

Modern manufacturing capabilities and higher grade raw materials have allowed much higher performing twines to be produced using less plastic while achieving much greater lengths. This means there is a choice between making the twine thicker or smarter. However, not all manufacturers

have invested in the same technology and some twines are still made in a traditional way but because balers have increased in capability and tractors only get more powerful, they have had to continue making their twine thicker, getting shorter as a result, meaning more packs have to be bought. There was clearly a need for clarity in the twine market place as not all twine is created equal.

Experience shows that performance of the twine is the number one concern and there are several influencing factors. Firstly, the capability of the baler (make/model) determines how hard the crop is compacted (stored energy). Secondly, the type of crop (forage/straw) determines how much it resists being compacted. Thirdly, the moisture level of the crop (conditions) determines the volume of crop needed to achieve the desired weight, less moisture means more crop is required to achieve the same weight, increasing the forces involved.

Understanding these three controlling factors and their influence, it is possible to create a scale of performance and in 2018, Tama released the International Baler Twine Segmentation. A comprehensive range of 5 twines that covers all balers, all crops and every condition. From Tama LSB Max 3200m when low density is required through to Tama HD Prime 2200m for maximum performance in extreme conditions. The range of Tama Twine is specifically designed and manufactured to allow all balers to perform at the highest level with unrivalled knot performance ensuring reliable, consistent baling with a higher output, better efficiency and less waste.

The working relationship that Tama has with the major Original Equipment Manufacturers (OEMs) means that all of these twines are fully validated, giving you certainty that the highest performance is guaranteed. To find the perfect match for your specific requirements Tama has worked with the OEMs to make recommendations for all balers in all crop types and conditions, guaranteeing the highest performance Twine is selected every time.

Using the Twine Selector tool on the Tama website, you can quickly and easily identify the recommended Twine and using the Twine Calculator, work out the quantity needed to cover all your baling needs for the season. All of Tama's products contain a guaranteed minimum of the stated length which means that you can be certain of your costs per bale before you start baling.

Confidence in your baler Twine is priceless, especially in these uncertain times. Tama has a team of highly knowledgeable, helpful and friendly crop baling solution specialists available to support you and your business all year round. We can be contacted directly through our details on the website or via any of our OEM partners and all good merchants.



Now for something a bit different ...

Ed Leggett
Pallet Wraps Regional Sales Manager

Whilst it's widely known that Tama are market leaders in the manufacture of Baler Twines and Netwrap. Many will be surprised to know that Tama are also leaders in the manufacture of Palletnet.

Tama was one of the pioneers of open mesh netting in the mid-80s. In 1986 Tama came to the market with its first generations of Palletnet specifically designed to ensure maximum ventilation of the pallet as well as insuring load security. Soon after that time Tama started exporting globally and have never looked back!

Many root crops for example such as Potatoes, Carrots and Parsnips once they come out of cold store start to build condensation. This is especially noticeable when product is packed into paper sacks, and then wrapped in a non-breathable able pallet wrap. When this happens the quality of the product inside starts to deteriorate

Tama's range of Palletnet are specifically designed to overcome this problem whilst not compromising load hold to ensure the pallet arrives safely at the end destination

Whilst there many other competitors in the market Tama has always ensured that they've brought money-saving advantages to the customers.

Ed explains more:

Often when visiting customers who use a competitor's product the customers are all having the same issues. The customer doesn't know if they are getting the correct tension in the net and also the net reduces in width when stretched.

To overcome this, Tama first created X-Span Palletnet. This was a huge step in the evolution of Palletnet. The net is cleverly woven so that once the net is under tension it maintains its full width without it being pulled in at the sides. Most of the Palletnet Ed see's often shrink in width by over 25%, which means more wraps of the pallet are required increasing costs

Shortly after, Tama created the N'Dicator, all Tama's Palletnets are now available as standard with the innovative addition of a built-in visual elongation pointer that allows you to ensure the Palletnet is stretched to its optimum. N'Dicator is a blue strand woven into the net, when the line goes flat you know you have reached optimum elongation. This is a visual aid that you can use as you wrap ensuring each wrapped pallet is as good as the last one. Consistency is key in wrapping multiple pallets.

N'Dicator and X-Span combined are proven to reduce the amount of Palletnet required per pallet and importantly reduce the cost of each pallet wrapped.



RaniRepel

A new pest-repellent bale wrap, designed to protect against bird and rodent attack and reduce financial losses for farmers, was launched by Rani Plast in the spring. RaniRepel contains a non-toxic, natural active ingredient which, through odour and taste, is repulsive to crows, ravens, rats and mice, but cannot transfer to the baled crop or to the soil. RaniRepel is an excellent repellent and it does not harm animals, nor does it affect the role they play in biodiversity.

Bale degradation by rodent and bird attack can ruin silage and fodder and be costly for farmers in terms of lost crops and time required for repairs. Damaged bales lead to mould, crop contamination and bacterial toxicity, which in turn can impact cattle health and milk production. RaniRepel is designed to dramatically reduce these risks. Extensive trials have shown that RaniRepel almost completely eliminates bird and rodent attack so that the wrapping remains intact. They have also shown that RaniRepel has the added benefit of clearing areas of pests as rodents and birds learn to avoid it and pass on this warning to their group and descendants.



The repellent additive is made up of natural elements including essential oils and is extruded into the bale wrap at the manufacturing stage. The repellent exudes an odour which is repulsive to pests and has a bitter taste which irritates the mucous membrane in animals. Because the repellent is integrated to the outer layer of the film it cannot affect the wrapped crop. It cannot be washed off by rain, it is resistant to high temperature

variations and remains fully active for two years from the production date. RaniRepel should be handled and stored like any other Rani Plast bale wrap

The additive used in RaniRepel is approved by EU regulatory bodies, meets biocidal regulations and can be recycled. Testimonials from farmers in the USA, who have been trialling RaniRepel, have reported dramatic improvements in crop protection. Similar reports from farmers trialling the repellent in France, Belgium and Switzerland reveal the excellent performance of RaniRepel.

Pricing 2020

Warren Tatton
Tama UK Commercial Manager

With the backlog of Crop Baling Products left over in the supply chain from the poor baling seasons of 2017 and 2018 we eventually saw some great volumes of bales produced during 2019.

Heading into this new season we find ourselves in very turbulent times and predicting pricing is particularly challenging this year more than ever. All producers will plan raw materials and build up stocks well in advance of any season. Events so close to the start of any season would barely show an impact. However, the effects of world events such as Covid-19 and the economic fallout will undoubtedly cause more immediate fluctuations this year. These will come from extra demand on polymer being diverted to PPE, closed borders preventing people moving around, countries forced to stop production by government, a limited workforce due to illness and a weakening exchange rate.

We were fortunate early in the year to see a stronger forex resulting in better pricing and lower raw material costs, particularly on stretchfilm. For livestock farmers the outlook was good as silage clamps were still holding a good quantity of grass left to see them through to turn out. Straw availability will be lower this year due to low levels of cereals sown in autumn, suggesting a higher price being commanded for straw so a desire to bale everything will be expected.

The events of Covid-19 will be felt by some manufacturers and suppliers as we progress towards the season due to production being halted in some factories in Europe. The effect will see availability of some product lines becoming tighter as manufacturing production tries to catch up to full fill orders in all countries.

We would expect to see early prices to be lower than 2019 but as we move through the season, we will see prices start to increase as availability will potentially tighten up and the weakening of the forex will impact some the later produced products supplied to the UK. Advice is to source your usual products with your suppliers early and plan well in advance for your season ahead.



www.croppackaging.com

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