GUIDE TO KARATZIS BALE NETWRAP

1. BALE NETWRAP FACTS

Bale Netwrap Length

Karatzis Bale Netwrap is made to a guaranteed roll length, making it unique in the market.

- Production is carried out under stringent controls in order to assure the exact metering calibration of each machine.
- A roll-unwinding unit is used on a continuous basis to assess the exactness of the metering apparatus and the roll length.
- Karatzis Bale Netwrap meets all the technical specifications and standards of the DLG (German Farming Association).

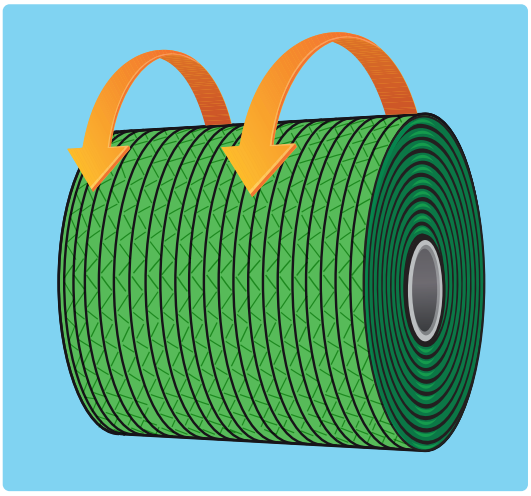
Karatzis Bale Netwrap Fabrication

WARP
The Warp being the long strong chains that run the length of the Netwrap.

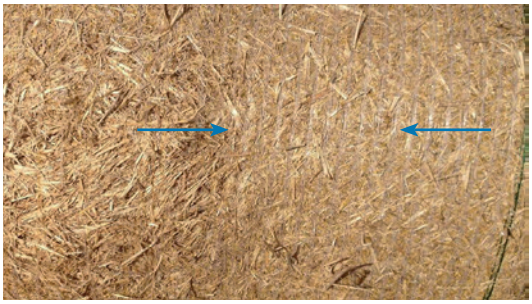
WEFT
The Weft being the zig-zag pattern that only connects the long strong chains.

Bale Netwrap Strength

The strength of net wrap is all dependent on the Machine Direction. That means the thicker Warp chains hold the pressure of the bale.

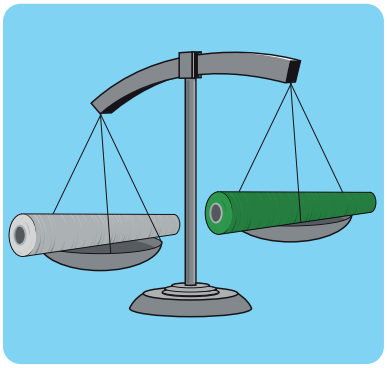


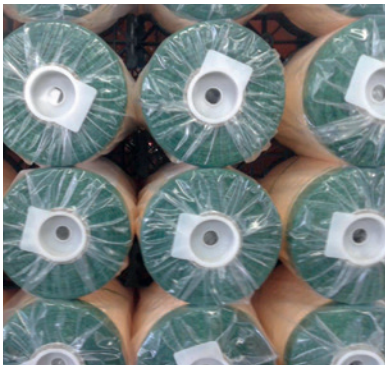
The thinner Weft chains aren't able to support the expansion pressure of the bale. Instead, they only maintain the correct spacing.



The durability of the Bale Netwrap is not linked to the weight per metre (g/m)

Rolls of less weight and the same amount of durability can be manufactured using higher specific strength polymers.



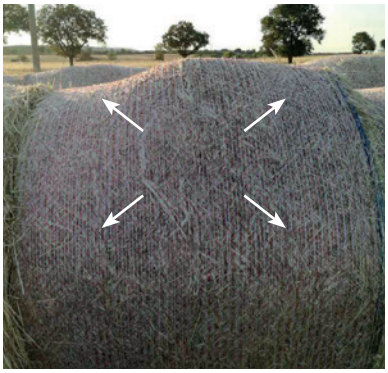


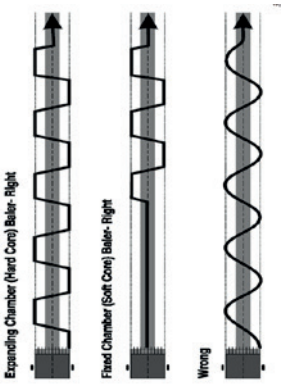
Karartzis Bale Netwrap is convenient to handle and produced in small diameter rolls that are strong but lightweight.

2. CORRECT BALING

Bale Formation

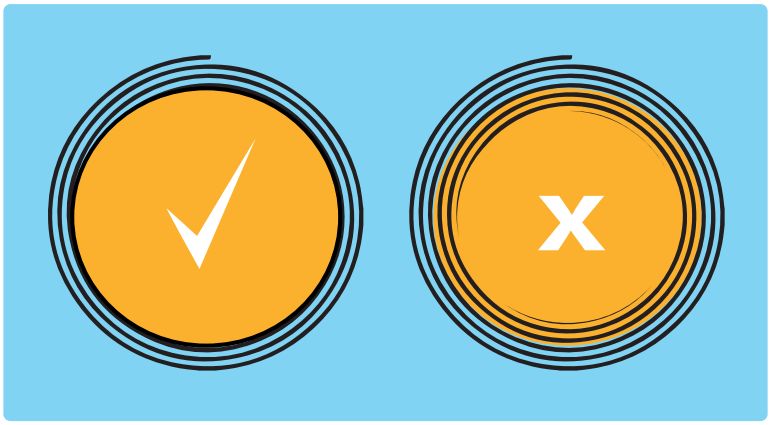
When it comes to appropriate baling, the bale shape must be in uniform and flat across the surface. Uneven bales will cause the net wrap to go under enormous pressure, which can affect the overall quality of the bales.





Bale Netwrap Application

The net wrap must be applied on the outer surface of the bale only. If the crops are still being picked up as the net cover begins feeding into the baler, a portion of the net wrap will be inside the bale, instead of on the surface.



With fewer wraps of net wrap on the bale surface, the net cover may not be able to withhold the bale pressure, which causes the bales bursting.

Bale Damage

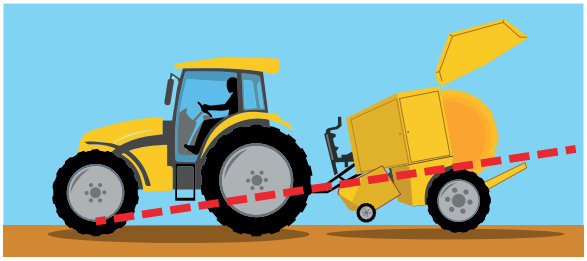
The bale should be removed as soon as possible in order to prevent further damage to the Bale Netwrap by the chamber rollers.

CAUSE

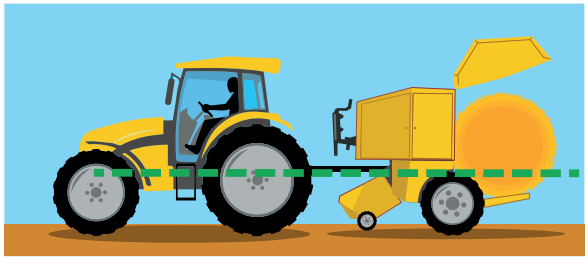
1. The bale is too large and compact, causing it to get jammed in the baler
2. The bale cannot rotate inside the chamber walls
3. Difficulty in ejecting the bale from the chamber due to its incorrect angle

SOLUTIONS

A. Reduce friction against the bale surface by the rollers and reduce speed or disengage PTO
B. Allow the bale to be released more smoothly by aligning the baler to the tractor correctly



The angle of the bale to the tractor prevents it from being ejected correctly

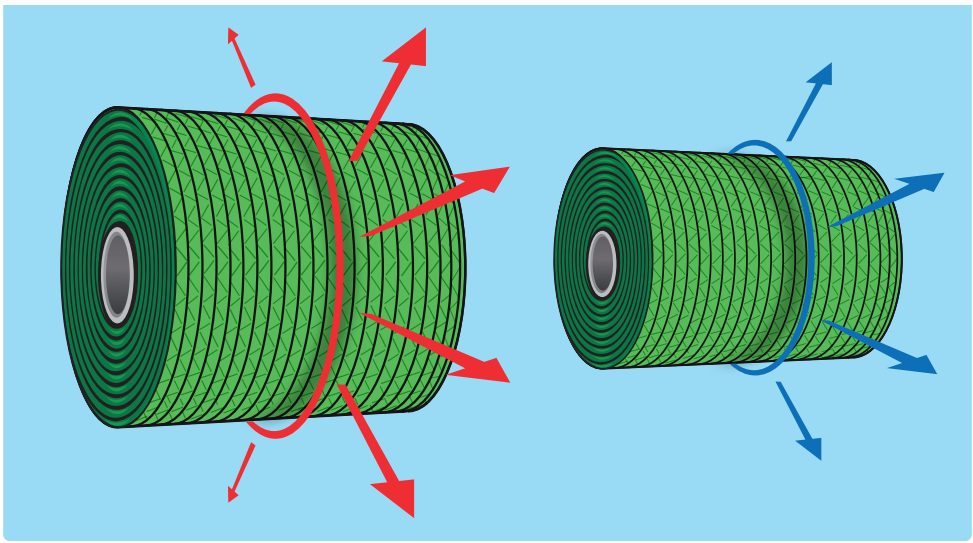


The bale can be ejected swiftly from the tailgate when the baler is correctly aligned to the tractor

Crop Type

Grass Hay or Silage put less pressure on the Bale Netwrap than dry crops such as cereals

A larger, wider bale puts more pressure on the net and needs ADDITIONAL turns



The right quantity of Bale Netwrap on the bale

The wraps of netwrap to be applied to the bale depends on the following:
1. The type of crop
2. Diameter of the bale
3. The method of bale handling
4. How frequently the bale is handled

It is priority to ensure that the layers of Bale Netwrap set by the baler-monitor in the tractor are the actual layers of the bale surface.

The correct quantity of Bale Netwrap on the bale surface is not always as desired.

GUIDE TO KARATZIS BALE NETWRAP

It is essential that the bale is wrapped with the minimum amount of Netwrap, depending on the crop being harvested.

The following guide shows how to achieve optimum baling and refers to the recommended minimum number of layers on the bale's surface:

INSTRUCTIONS			
	Silage	**Hay**	**Straw**
Standard	2,5	3,5	4,5
High UV*	3	4	5,5

*South Europe, South America, New Zealand, Australia, USA and South Africa

• For best results we suggest to apply a minimum number of netwrap revolutions.
•Based upon the type of crop, the weight of the bales and the climatic conditions, it may be necessary to use more revolutions than suggested.
• Do not expose the roll to extremely low or high temperatures.
• Keep the roll in the original packaging until usage.
• The netwrap is UV stabilized, nevertheless it is recommended to shelter the bales within several days.
• Keep the netwrap away from chemical products which could alter the UV-stability, e.g. high concentrations of mineral and chemicals including sulphates (S), chlorine (Cl), aluminium (Al). Don't bring the netwrap in contact with the following chemicals, when their concentration is over 200 ppm: S, Cu, As, Hg, Ti, F, Br, I, Al. Only Chlorine, max. 40 ppm. This applies when the netwrap is in the packaging, around a finished bale and during storage. **If the concentration is higher than the started concentration, netwrap can be damaged and break!**

Further baling guidelines are as follows:

• Load the bale chamber evenly, driving from side to side.
• During ejection ensure that the bale does not snag on the belts or chamber rollers.
• Ensure that both feed rollers are correctly aligned.
• Handle and transport the bales carefully.
• Check and clean the snagging points which may tear the net.
• Indoor storage. When bales are marketed or stored for more than one season, consider indoor storage or bale covers. The outer 10cm thick layer of a 1,8m diameter round bale contains about 25 percent of the total bale volume, so protecting this layer is important.
• Beware of the side forces with stacked bales. A stack can exert a significant load on the walls of a storage structure.

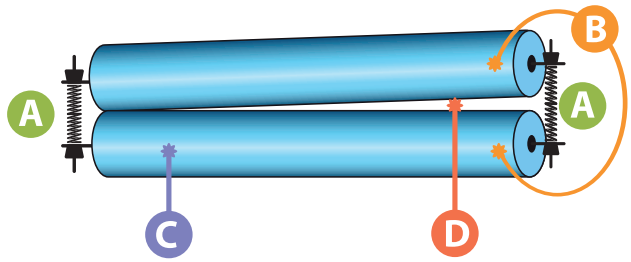
3. BALER KNOWLEDGE

In order to use the Bale Netwrap successfully on all round balers, the basic process remains the same.

- Feeding the Bale Netwrap into the baler
- Tension the Bale Netwrap when binding
- Spread the Bale Netwrap across the width of the bale
- Cut the Bale Netwrap at the end of the binding cycle

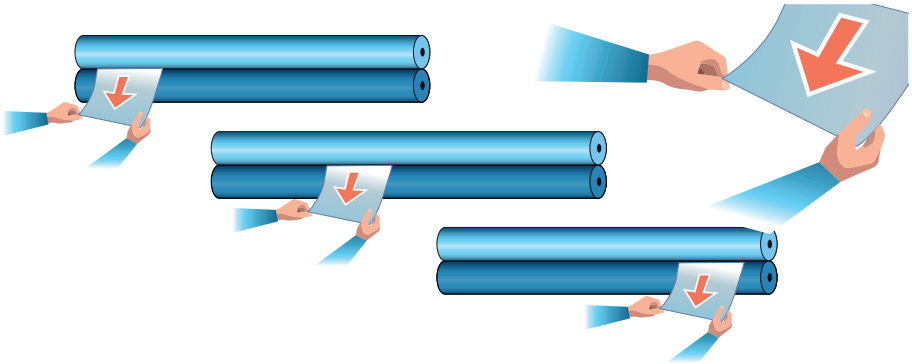
System Feed

Make sure that the steel or rubber rollers are adjusted accordingly at each side in order to achieve the desired feeding pressure.



To check that the rollers are aligned, insert a single piece of paper and turn the rollers until the paper is extracted.

- Pulling the paper out slowly will loosen the rollers if too tight.
- Repeat the process along the whole width of the rollers to assure uniformity.
- Adjust the rollers to create an even paper flow.



Tension system

Tension needs to be created on all balers to ensure that the Bale Netwrap spreads well, grips tightly and allows the cutting mechanism to make a clean cut.

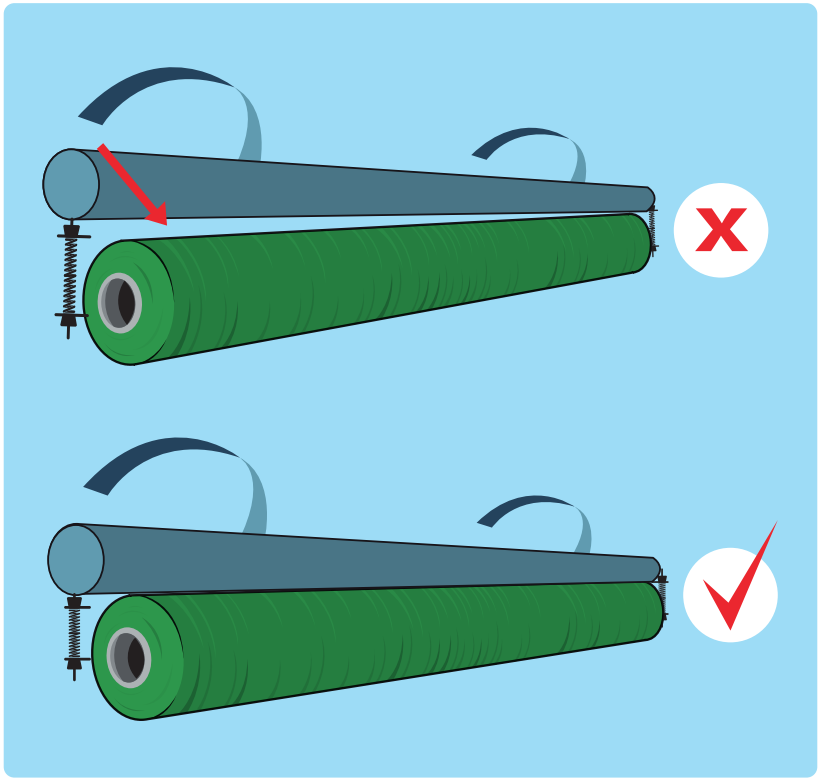
The braking system should be adjusted and working correctly in order to guarantee optimum tension throughout the full width of the Bale Netwrap.

Baler Tension Systems can be categorised as follows:

A Spring-tension metal bar which pushes onto the surface of the Bale Netwrap roll (Claas, McHale etc.)
B Braking mechanism against the feeding rollers (John Deere etc.)
C Disc brake and brake pad which grip the hard core of the Bale Netwrap roll (Case IH, Krone, New Holland, Welger etc.)

Crucial points to check on common baler typical brake systems:

A. Spring tension brake bar (Class, McHale)

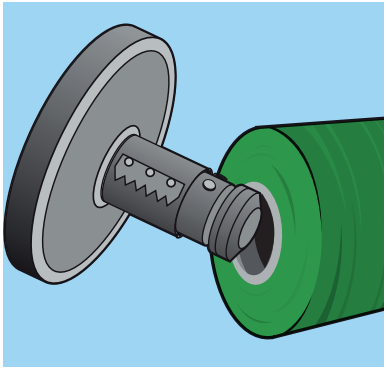


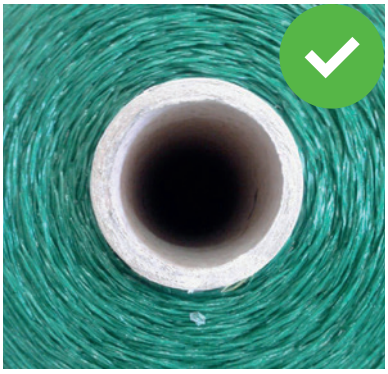
Make sure the tension brake bar is flat and in contact with the full width of the Bale Netwrap roll.

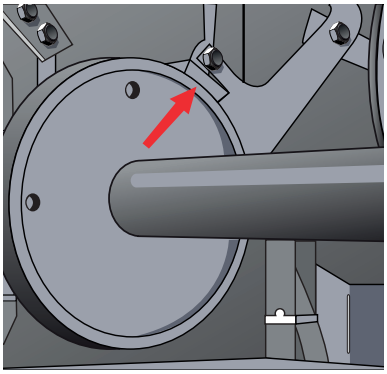
B. Braking mechanism connected to feeding rollers (John Deere)

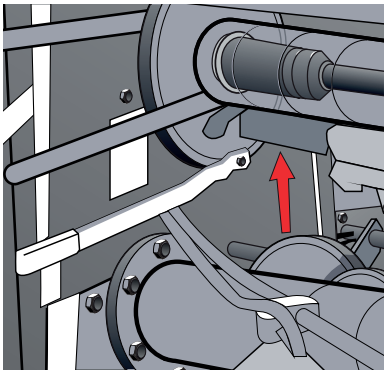
Increase brake tension with the use of additional shims being added behind the fixing plate. Check that the feeding rollers are aligned (see Feeding System above).

C. Disc brake and brake pad (Krone and CNH)









In order to guarantee braking efficiency, check the condition of the brake pad.

On Krone baler (see image) confirm that the brake arm is positioned and adjusted in accordance with the operator manual.

4. NETWRAP TROUBLESHOOTING AND REMEDIES

Problem: Net Splitting

Cause:

1. Net being snagged or damaged in baler, causing laddering,
   - Check net path through baler for sharp edges and rust.
   - Check net is not being damaged on end, within the net box space.
   - Worn or damaged units will tear net.
2. Insufficient net applied to the bale.
   - Bales should always have a minimum of 2 turns of net per bale

Problem: Net wrapping around feed rollers

Cause:

1. Uneven net cutting leaving Long tails of net catching on feed rollers.
   - Adjust brake tension to give a cleaner cut on the net and look at the cutting action and ensure the knife is clean and undamaged. Typically, knives need sharpening every 500 to 1000 bales, depending on the material baled, and it is important to sharpen them correctly if they are to stay the course
2. Feed rollers worn or damaged, catching net when running.
   - Check feed rollers are smooth and free from anything that may interfere with the netwrap.
3. Feed rollers wet or sticky from damp or crop residue.
   - Clean rollers and apply talc (chalk) or anti-static spray
4. Netwrap feed guide behind feed rollers damp or dirty from crop residue.
   - Clean net feed guide plate.

Problem: Net not spreading to edge of bale

Cause:

1. Netwrap not tensioned sufficiently.
   - Check and adjust net wrap tension in baler. More tension will help net to spread better.
2. Uneven bale density.
   - Bales with less dense edges will cause the net to “neck down” on the bale and go to the edge.
3. Crop residue jammed in baler.
   - Crop jammed between chamber belts and drive rollers will restrict the net from being applied evenly to the bale.
4. Feed rollers miss aligned.
   - Check and correct feed roller alignment. Bad adjustment will lead to uneven feeding and therefore application to the bale.

Problem: Netwrap snapping in baler

Cause:

1. Roll of net jammed tight in bale box.
   - Check core is not swollen and out of shape, restricting its operation in baler.
   - Check net wrap box is not restricting roll running freely.
   - Check there is not too much brake tension being applied to the roll.
2. Excessive friction on the net.
   - Ensure baler’s fixed tension bars are clean, free from dirt and rust and that the net is threaded correctly. Incorrect installation can lead to broken net, feeding and cutting problems.