



# TROUBLESHOOTING GUIDE

Sigma Agriculture

## Abstract

This guide was created by our Sigma Agricultural Team to help evaluate certain situations that may occur. In some cases, further investigation of an issue will be needed.

If further assessment/evaluation is needed, please be sure to send a detailed email describing your issue. Sigma will get back to you within 5 business days with Technical Support. In your detailed email, please be sure to include your contact information, and photos you may have, the core number and roll number, and any additional notes.

Sigma AG  
[www.sigmaag.com](http://www.sigmaag.com)

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## Equipment Tension

To measure tension, follow these steps:

1. Mark the roll prior to wrapping with 2 lines 10 inches apart
2. After one revolution stop the wrap cycle
3. Find the marks now that the film has been applied and measure the new distance between them
4. This number should line up with your machines pre-stretch gearing (usually 55%) +/- 10%:
  - a. If the tension is too high, extra resistance may be occurring
  - b. If the tension is too low, film may be slipping through the carriage

**To Measure tension, follow this equation for film stretch in percentage:**

$$\text{Stretch percentage} = \frac{\text{Final Measurement} - \text{Initial}}{\text{Initial Measurement}} \times 100\%$$

$$\text{Stretch Percentage} = \frac{16 \text{ inches} - 10 \text{ inches}}{10 \text{ inches}} \times 100\%$$

**STRETCH PERCENTAGE = 60%**

## Unwind Test

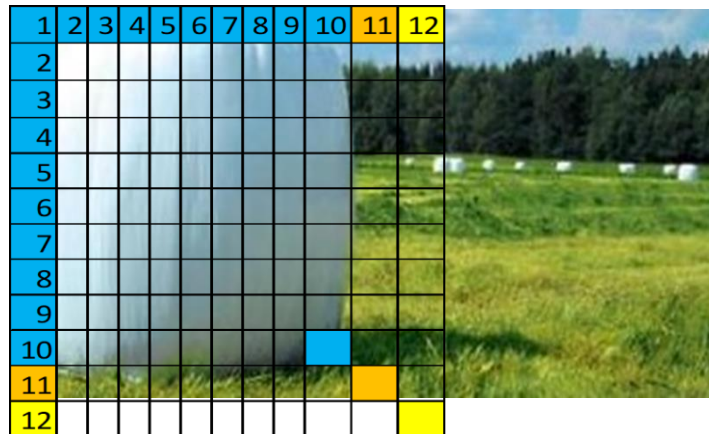
Measure unwind force of roll before loading onto equipment

Create an attachment point for your pull-scale by forming a loop

Load roll onto equipment and using the same looping method as step on measure unwind force

## Overstretching

- If we overstretch by ONLY 10%... this will increase your surface by 21%
- That would reduce your tack level by 21%
- If you overstretch by 20% (12x12= 144) your tack level would decrease by 44%
  - You have the impression of No tack while wrapping.



10 x 10 = 100	Excellent Coverage and Tack Levels
11 x 11 = 121	Increase Surface Coverage and Decrease Tack Levels by 21%
12 x 12 = 144	Increase Surface Coverage and Decrease Tack Levels by 44%

## Loose Film

Is there any dirt or build up on the track of the pre-stretch unit?

*Roller Build Up*

**Problem:** Over time the tackifier used in silage film will rub on to the rollers of the machine causing the rollers to be covered in a sticky black residue

**Solution:** Clean rollers with white mineral spirit. Make sure that all build up has been removed from the rollers and try again



Are the springs in the pre-stretch unit weak?

**Problem:** The springs inside the pre-stretch unit will weaken or break over time. This can cause lack of tension on film during application

**Solution:** Replace the weak springs in the Pre-Stretched Unit to remove slack in the system

Loose Film Application can be generated by several outdoor ailments or problems with machinery; we were unable to pinpoint your problem.



## Film Tearing During Wrapping

Is the edge damaged?

**Problem:** The roll was mishandled and has damaged. When rolls are dropped or damaged on the edge, the chance of film breaks increases dramatically.

**Solution:** Either pull the damaged film off the roll until undamaged film is being used or replace the roll.



Are the rollers on the Pre-Stretch Unit damaged?

**Problem:** When the rollers on the Pre-Stretch Units are damaged, with nicks or cuts for example, this can lead to tearing of the film during wrapping.

**Solution:** Replace the rollers or attempts to fix the damage and try again. Additionally, clear the rollers of all other debris



Is the film catching any part of the wrapper prior to bale?

**Problem:** The film is catching on the wrapper before getting to the bale.

**Solution:** Ensure the film is threaded through the Pre-Stretch Unit correctly and there is nothing obstructing the path of the film before trying again.

Film tearing while wrapping can be generated by problems with the machinery; we were unable to pinpoint your problem. Please see Next Steps on page 16 for next steps and contact information.

## Spiral Tearing of Film

Does the edge of the roll have any damage?

*Film Damage*

**Problem:** The roll was mishandled and has damaged. When rolls are dropped or damaged on the edge, the chance of film breaks increases dramatically.

**Solution:** Either pull the damaged film off the roll until damaged film is being used or replace roll.

Is there any build up on the Pre-Stretch Unit rollers?



Roller Build Up

**Problem:** Over time the tackifier used in silage film will rub on to the rollers of the machine causing the rollers to be covered in a sticky black residue

**Solution:** Clean rollers with white mineral spirit. Make sure that all build up has been removed from the rollers and try again



Is it would in a manner that makes it unusable?

*Winding Fault*

**Problem:** Some of the ingredients used in the film can cause layers to slide between each other.

**Solution:** Unwind the film until any flaws have been removed. Try the roll again after unwinding. If the film is still unusable please email us for technical assistance.



Is the film showing signs of telescoping?

*Spiral Tearing due to Core Misalignment: Improper Storage Conditions*

**Problem:** Sigma Silage Film should ideally be stored between 15°- 20° Celsius before use.

*Film Storage Information*

1. Film should not be stored in direct sunlight
2. Ideal storage temperatures are between 15° & 20° Celsius
3. All rolls must be handled carefully to ensure that edges are not damaged
4. Rolls should be kept in box until moment of use
5. Consider keeping rolls in a tractor or compartment prior to their use

Core Misalignment can be generated by problems with machinery or various outdoor ailments including temperature which creates PIB migration; we are unable to pinpoint your problem.

Film tearing while wrapping can be generated by problems with outdoor ailments and machinery; we were unable to pinpoint your problem. Please see Next Steps on page 16 for next steps and contact information





## Over Stretching of Film

Check gears on your Pre-Stretch Unit. Are they worn or binding in any way?

Worn Gears

**Problem:** Gears that have worn or been damaged can cause rollers to lock up and create extra tension.

**Solution:** If the Pre-Stretch Unit gears are worn or binding they must be replaced. This ensures the film stretches properly without major resistance.



Is there any build up on the Pre-Stretch Unit rollers?

Build up on Pre-Stretch Unit

**Problem:** Over time the tackifier used in silage film will rub on to the rollers to be covered in a sticky black residue.

**Solution:** Clean rollers with white mineral spirit. Make sure all build up has been removed from the rollers and try again.



Is the roll of film very easy to stretch in comparison to others?

Overstretching of film can be generated by problems with machinery; we were unable to pinpoint your problem, but there could be a problem with your film based on its ability to stretch easier than most. Please see Next Steps on page 16 for next steps and contact information

## Holes in Film During Wrapping

Do your rollers have nicks or cuts on them, such as aluminum chips?

### ROLLER DAMAGE

**Problem:** When the rollers on the Pre-Stretch Units are damaged, with nicks or cuts for example, this can lead to tearing of the film during wrapping.

**Solution:** Replace the rollers or attempts to fix the damage and try again. Additionally, clear the rollers of all other debris



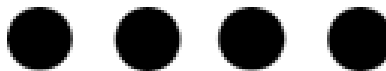
Is the film catching any part of the wrapper prior to bale?

**Problem:** The film is catching on the wrapper before getting to the bale causing a hole to form when the film is pulled.

Are the holes on the bale in a straight line or randomly spread?

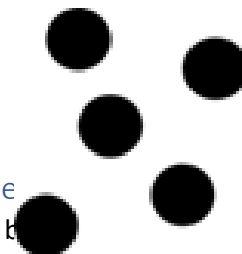
### Straight Line

Holes in the film created while wrapping can be generated by problems with machinery; we are unable to pinpoint your problem. However, as the holes were mostly in a straight line, the issue is most likely being created by the wrapper.



### Randomly Spread

Holes in the film created while wrapping can be generated by problems with machinery; we were unable to pinpoint your problem. Please see Next Steps on page 16 for next steps and contact information



## Poor Film Adhesion

Have rolls been stored in cold temperatures?

**Problem:** Sigma Silage Film should ideally be used between 5° - 20° Celsius before use. Lower temperature may cause PIB migration where the adhesion ingredient migrates away from a portion of the film and/or pools in an area of film.

### Film Storage Information

- 1 Film should not be stored in direct sunlight
- 2 Ideal storage temperatures are between 15° & 20° Celsius
- 3 All rolls must be handled carefully to ensure that edges are not damaged
- 4 Rolls should be kept in box until moment of use
- 5 Consider keeping rolls in a tractor or compartment prior to their use

### Are the rollers on the Pre-Stretch Unit damaged?

**Problem:** When the rollers on the Pre-Stretch Units are damaged, with nicks or cuts for example, this can lead to tearing of the film during wrapping.

**Solution:** Replace the rollers or attempts to fix the damage and try again. Additionally, clear the rollers of all other debris



### Were the bales wrapped in the rain or on a windy, dusty day?

#### Poor Wrapping Conditions

**Problem:** The film's adhesion efficiency is reduced when it comes into contact with rain, dust, dirt, or debris.

**Solution:** Remove any dirt from the film where possible and let dry as needed. Remember to wrap bales optimal weather conditions.

Please see Next Steps on page 16 for next steps and contact information

## Core Misalignment

Is the film unusable due to a flushed core?

**Problem:** One side of the roll is flush with the core, making it impossible for film to properly cycle through the wrapper.

**Solution:** If the rolls in this condition, and were stored properly, please send us a detailed email describing your issue. Sigma will get back to you within 5 business days with the Technical Support. In your detailed email, be sure to include your contact information, any photos you may have, the core number, and the roll number of the film, as well as any additional notes.



Is the film showing signs of telescoping?

**Problem:** Sigma Silage Film should ideally be stored between 15°- 20° Celsius before use. Temperature outside this range can cause the film to shift.



### Film Storage Information

- Film should not be stored in direct sunlight
- Ideal storage temperatures are between 15° & 20° Celsius
- All rolls must be handled carefully to ensure that edges are not damaged
- Rolls should be kept in box until moment of use
- Consider keeping rolls in a tractor or compartment prior to their use

## Film Splitting or Holes on Bale

Is there enough film being applied to ensure total coverage with at least 6 layers of film?

Insufficient Coverage

**Problem:** All Bales must be covered with at least 6 layers of film at all points. Less layers makes the bale subject to spoilage, and more is always recommended.

**Solution:** Apply enough film so that all areas of bale have at least 6 layers of film.



Is the film showing signs of degradation from UV rays?

UV Degradation

**Problem:** Ultraviolet light, oxygen, and heat all will degrade polyolefins and cause brittleness, color change, and product failure. However, there are additives called Ultra Violet Inhibitors that trap the free radicals which form during the photo-oxidation process, retarding the breakdown of the film. However, over time, the sun degrades the UV Inhibitors in the plastic.

**Solution:** The plastic is guaranteed for a period of 12 month from the date of proper application and use, if the film is showing signs of degradation within this warrantee period, please contact technical support. In your email, be sure to include a detailed description of your problem, your contact information any photos if you have them, the core number and roll number of the film and any additional notes.



Do your rollers have nicks or cuts on them, such as aluminum chips?

#### ROLLER DAMAGE

**Problem:** When the rollers on the Pre-Stretch Units are damaged, with nicks or cuts for example, this can lead to tearing of the film during wrapping.

**Solution:** Replace the rollers or attempts to fix the damage and try again. Additionally, clear the rollers of all other debris.



Were bales wrapped with Sisal Baler Twine?

**Problem:** Sisal twine is treated with oil-based pesticides that interact with important ingredients in Stretch Film that ensure its strength.



Were Chemical Fertilizers sprayed near the storage site of the bales?

#### Chemical Fertilizers

**Problem:** Chemical Fertilizers interact with important ingredients in stretch Film that ensure its strength.

**Solution:** Consider storing your bales in a new location to prevent loss.



Is the film showing any signs of livestock entry or has it been stored near detrimental outdoor ailments including branches or blowing snow?

Animal Entry or Outdoor Ailments

**Problem:** Film Splitting is usually caused by animal entry, blowing snow, uneven bales and other outdoor ailments tearing the film. It may be necessary to use a higher grade of film if these are common or to cover with silage sheeting – provided by Sigma AG. Holes through all layers of film are usually caused by extreme scenarios i.e. dry material, large stems, rocks etc. It may be necessary to use a higher grade of film if these are common.

\*Splits and holes must be covered with repair tape as well\*

**Solution:** The film has most likely been compromised by either an animal or livestock stubble. Use tape to seal holes and check back for further problems.



Is the film experiencing a great deal of snow?

Splitting of Film can be generated by problems with machinery or various outdoor ailments; we were unable to pinpoint your problem.



Is the roll of film very easy to stretch in comparison to others?

Overstretching of Film can be generated by problems with machinery; we were unable to pinpoint your problem, but there could be a problem with your film based on its ability to stretch easier than most. Please see Next Steps on page 16 for next steps and contact information

## Spoilage of Baled Material

Were the bales wrapped with a minimum of 6 layers of coverage, with no holes present?

**Problem:** When oxygen has made its way into the bale after it has been wrapped, aerobic fermentation takes place. This is dangerous to feed to livestock.

**Solution:** Ensure all areas of the bale at least 6 layers of coverage, however we recommend increasing the number of layers in some cases (large square bales, in extreme condition or when the dry matter exceeds 50% etc.) as these extra layers will provide a better seal and prevent oxygen from entering and increase yields.

**\*DO NOT FEED SPOILED SILAGE TO LIVESTOCK!\***

Were the bales exposed to fertilizers, pesticides, treated twines and materials, manure, rain or other harmful elements?

**Problem:** The bales were exposed to contaminants or rain that spoiled the material. These contaminants interact with the plastics used in agricultural products and can allow oxygen to enter.

**Solution:** Consider storing your bales in a new location to prevent loss.

Spoilage can be generated by problems with machinery or various outdoor ailments; we were unable to pinpoint your problem. Please see Next Steps on page 16 for next steps and contact information



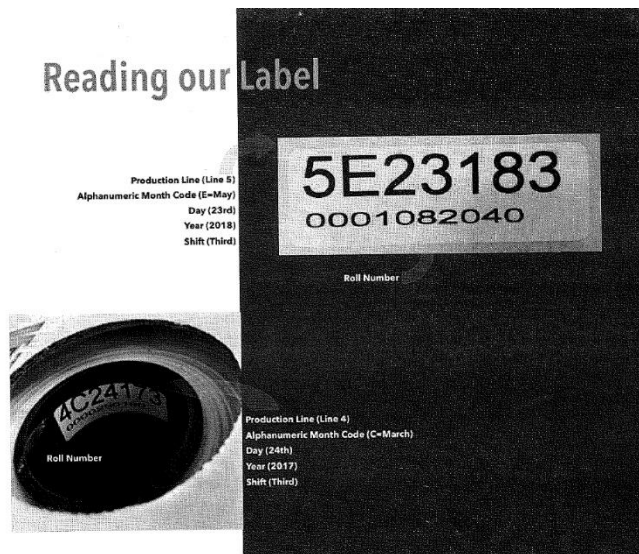
### Next Steps

\*Make sure to keep the core for the roll in question so our Quality Control Team can also take a look at any potential issues with the film.

Please send us a detailed email describing your issue. Sigma will get back to you within 5 business days with the Technical Support. In your detailed email, be sure to include your contact information, any photos you may have, the core number, and the roll number of the film, as well as any additional notes.

### Reading Sigma's Core Label

JAN	A
FEB	B
MAR	C
APR	D
MAY	E
JUN	F
JUL	G
AUG	H
SEP	I
OCT	J
NOV	K
DEC	L







## Contact Information

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