

## RECOMMENDATIONS FOR BALING IN EXTREME CONDITIONS

To ensure the correct function of the net wrap under long-term exposure to extreme conditions, elevated temperatures and exposure to UV rays, we highly suggest a combination of the below mentioned recommendations.

### 1 - Recommendations for minimizing losses / damage to the net wrap

- A. Identification of extreme conditions:** In the case of baling of straw and other heavy crops it is necessary to continuously check and immediately identify the occurrence of extreme conditions. Under the influence of these, it is essential to adapt the settings of the baler and baling procedures depending on climatic conditions, type of baled material, its humidity, density, bale size and other factors (transport, storage). In extreme cases, the baling must be interrupted and restarted only after the exposure to extreme conditions has passed (work early in the morning or at night).
- B. Bale density:** In the case of baling of straw, cereals or grasses under extreme conditions, the baling pressure must be reduced immediately.
- C. Number of wraps:** When baling straw, cereals or grasses under extreme conditions, it is necessary to increase the recommended number of wraps.

### 2 - Definition of baling in extreme conditions

- **Crop:** straw of cereals (especially barley), corn, sorghum, millet and other cereals or grasses.
- **Climate conditions:** high temperatures in combination with high exposure to sunlight before, during baling or for a long time after baling, large oscillations of temperatures and relative humidity.
- **Types of equipment:** baling of straw or other cereals and grasses after harvest by axial harvesters with a header width of 7 - 20 m. The use of modern balers driven by tractors with significantly higher power than the power required for a given type of the baler.
- **Baling procedures:** non-compliance with the recommendations for baling depending on the climatic conditions, the type of baled material, its humidity, density and size of the bale in combination with non-compliance with the minimum number of wraps of the net.



### 3 - Description of the influence of extreme conditions

- **Climate conditions:** most problems with straw baling arise from sunlight, drought, elevated temperatures and possible wind. In case of straw or other material, the so-called "over-drying" occurs, leading to spontaneous crushing of the material into smaller parts and higher dustiness, which results in complications in collecting of the material and formation of bales inside the baler chamber.
- **Round baler:** the use of the baler in extreme conditions has a primarily negative effect on the optimal working speed. Furthermore, there is an increased thermal and mechanical stress on the baler and its components leading to increased wear of these parts and thus to a reduction in their service life. It should be added that the net wrap, which is made of thin plastic fibers, comes into contact with the hot surfaces inside the baler chamber. The result of the duel of hot metal with plastic can surely be imagined by everyone. Last but not least, the baling of round bales in extreme conditions leads to an increase in fuel consumption.
- **Shape of the bale:** in the case of baling in extreme conditions, mainly the straw is spontaneously crushed into fine parts which are problematic for the correct formation of the round bale. In some cases, the bale slips inside the baler chamber and the net wrap can be subsequently damaged and/or irregular bales are formed. In the case of irregularly shaped bales, the net wrap is unevenly stressed, which can lead to its damage.
- **Bale density:** baling of straw, or other cereals and grasses in extreme conditions is associated with increased mass stress in the bale. The pressure of the mass inside the bale and its potential for further expansion is the cause of the increased mechanical stress on the net wrap which can lead to its damage during baling, transport or storage.
- **Number of wraps:** the application of an adequate number of wraps has a fundamental effect on the correct function during baling, transport and storage of round bales. Given that the need to increase the recommended number of wraps practically does not affect neither the binding time, nor the optimal working speed, nor significantly increase costs (price of 1 wrap of netting = approx. 0.30Eur), but on the contrary significantly reduces the likelihood of problems that may result in loss of the baled material, and thus the value of all the work that led to the making of the bale, therefore it is obvious that not only application of the recommended number of wraps, but also a possible increase in the number of wraps when using the net wrap in extreme conditions is a logical outcome of the above mentioned points.

