



Український
виробник рукавів
для зберігання зерна



**Планета
Пластик**
Завод поліетиленових виробів

HarwellTM



рукави для зберігання врожаю

User manual for grain (silage) bags



Dear Customer!

Thank you for your confidence and for the selection of the «Harwell» grain (silage) bag.

You hold the product made from European raw materials of high quality using modern extrusion equipment of the collective enterprise with many years experience in the polymer industry.

The basic principle of the technology is to store dry grain and feed in an artificially controlled environment with a low oxygen content and high concentration of carbon dioxide (CO₂) by self-preservation of grain within the first two weeks of storage.

This technology has a number of benefits and advantages over conventional methods of grain storage, including financial and logistic. You can also sort grain by type and store it until the favourable conditions for sale occur.

The following recommendations should be taken into account when using grain bags to increase their durability and to preserve grain properties for a long time:

1. Grain is a living organism, so it must be healthy, clean, and has no mechanical damage.
2. Moisture of the stored grain should not exceed the recommended values.
3. The risk of grain storage associated with the moisture content:

Low	(wheat, soy, corn – up to 14%, sunflower up to 11%)
Medium	(wheat, soy, corn – up to 14-16%, sunflower up to 11-14%)
High	(wheat, soy, corn – more than 16%, sunflower more than 14%)





4. Risk of harvest storage related to grain moisture and terms of its conservation:

Low	(wheat, soy, corn – up to 14%, sunflower up to 11%) – 6 months; (wheat, soy, corn – up to 14-16%, sunflower up to 11-14%) – 2 months; (wheat, soy, corn – more than 16%, sunflower more than 11%) – 1 month
Medium	(wheat, soy, corn – up to 14%, sunflower up to 11%) – 12 months; (wheat, soy, corn – up to 14-16%, sunflower up to 11-14%) – 6 months; (wheat, soy, corn – more than 16%, sunflower more than 11%) – 2 months
High	(wheat, soy, corn – up to 14%, sunflower up to 11%) – 18 months; (wheat, soy, corn – up to 14-16%, sunflower up to 11-14%) – 12 months; (wheat, soy, corn – more than 16%, sunflower more than 11%) – 3 months

The risk is assessed with the regard to grain moisture, natural aging of the bag and the possibility of its rupture caused by external factors (rodents, birds, pests, etc.). It is important to realize that these risks are for reference only, they are not absolute and may vary in different situations (eg, weather conditions).

- 5. Try to prevent contact of plant protection agents and other chemicals with a bag surface.
- 6. The use of aggressive agents for bag cleaning is prohibited.
- 7. It is absolutely forbidden to burn anything near the filled bag.
- 8. It is forbidden to walk on the filled bag.

Yours faithfully,
Harwell *company*



USER MANUAL FOR GRAIN BAG

1 TRANSPORTATION AND STORAGE

- When loading and unloading during the shipment, a box with a grain bag must have no significant mechanical damage (deep dents, punctures of box, etc.).
- These bags should be stored under cover only protected from direct sunlight. Grain bags must be stored in a horizontal position at +5°C to +50°C at least 1 meter away from heaters.
- To store the bags near chemicals is not allowed.

2 RECOMMENDATIONS ON THE SITES SELECTION FOR GRAIN BAGS LOCATION

- Place a grain bag on a solid, clean and dry surface, away from flammable substances.
- If the selected surface is inclined, the grain bag should be positioned along the slope. You should avoid locating bags in lowlands, wetlands or places with high water table.
- Before loading, the site surface needs to be prepared for placing of the grain bags: to clean the site from the stubble, gravel, stones and other foreign objects that may have sharp, cutting or scratchy edges to avoid damage of a grain bag during loading and storage.

WARNING! Due to failure to prepare the site properly, cuts or punctures at the bottom of the bag may occur, which can cause leakage and increase the level of moisture of the stored grain.

- There should be no spilled grain on the site and around the bag. It can attract rodents and birds, which can damage the grain bag.

3 UNPACKING OF GRAIN BAGS PACKAGING BOX

- Place a package box of a grain bag towards the loader, as arrow-pointed at the top of the box.





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- Remove packing film and packing tape from a grain box. Open the box containing a grain bag.

WARNING! The binding tape on a grain bag is not intended for lifting the bag out of the box.

4 FILLING OF GRAIN BAG

- Place a bag on a ground near a loader, not expanding it. There is a pointer (arrow) on the bag, which should coincide with the centre of the loader and point toward the loading tunnel. It is necessary to check the entire surface of the tunnel for the absence of foreign objects and sharp edges to prevent damage of the grain bag during the loading process.
- Use the loader for lifting and drawing the bag on the tunnel. It is important to draw the bag properly, it should be placed at the edge of the tunnel tube.



- Remember that the lines indicating stretch ratio must be visible on the both sides of the bag.
- Remove protective tapes. Secure the bag with elastic cords located on the loader, and pull the edge of the bag at 2.5 m.



- After fixing the bag on the loader, tie the unfolded edge with the rope, which is a part of the package, and put the knot underneath the bag. Thus, at the beginning of the loading procedure the bag edge will be pressed firmly by the weight of grain.



- Starting the procedure of the bag loading, check whether the bag is filled properly and, if necessary, control the process of loading and check the pressure of load using a braking device. The surface of the loaded part of the bag must be flat and smooth.

IMPORTANT! If the surface of the site is wet and slippery, it must be ensured that the grain bag is filled evenly, the loading machine operates without jerks, if necessary, adjust the braking system.

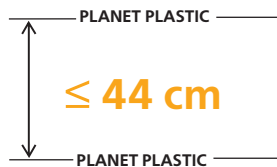


- Two parallel lines plotted along the whole length of the bag indicate the bag stretch ratio following the loading process. The distance between lines of an unloaded bag is 40 cm. During the loading, it is necessary to monitor the stretch ratio, measuring the distance between the lines using a ruler, which comes with a bag.

IMPORTANT! For proper stretch ratio measuring, the parallel lines should be at least 1 m over the ground.

WARNING! Stop the loading, if the distance between the marking lines has reached the red mark «STOP» on the ruler.

THE BAG STRETCHING SHOULD NOT EXCEED 10% (NOT MORE THAN 44 CM BETWEEN THE LINES)



- Tie the bag edge tightly with ropes and fix with strips of board. To prevent the bag damage by rodents, whelm this edge with soil. On the surface of the loaded bag, specify the percentage of grain moisture, date of loading and type of grain (the information is applied using spray paint or markers)



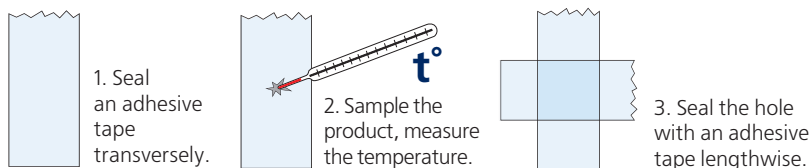


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WARNING! When loading procedure has been completed, there should be no spilled grain on the site and around the grain bags. Grain spilled during the loading procedure must be removed carefully on order not to attract rodents and birds, which can damage the bag during storage.

- **IMPORTANT:** In case if a bag was damaged or punctured during storage, you need to tape quickly a place of rupture or puncture for recovery and further maintaining of tight environment inside the bag.



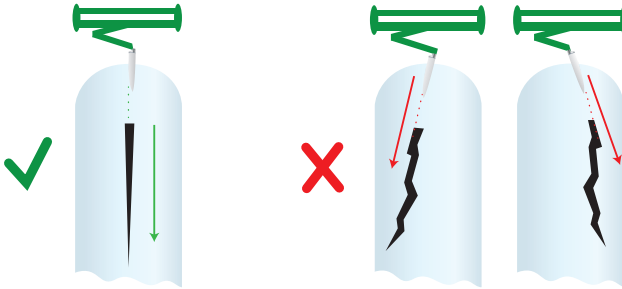
MANDATORY: Before you perforate the bag in order to measure the temperature of grain or to sample it, you must first tape transversely the puncture site. After sampling, lengthwise tape the hole.

5 UNLOADING OF GRAIN BAG

- If you use a protective cover for the bag, and its colour is different from white, remove it one day before the start of unloading procedure to equalize the temperature.
- Note that emptying of the bag should be started from that edge of the bag where loading was completed.
- The knife of the unloader should be sharp along the whole length of the cutting edge.



- The knife should be perpendicular to the bag and cut in a line at the top of the longitudinal axis of the bag, without deviations to the right or to the left. **INCORRECT positioning of the knife leads to rupture of the bag**



- Before emptying open the bag and fix it to a special shaft of the unloader machine.
- Do not drive the knife of unloader machine into the spanned film. This can lead to bag rupturing.
- At the time of emptying it is necessary to control the speed of the moving unloader machine.
- During the emptying process, it necessary to monitor the speed of unloader machine, the rate of unloading and the speed of the grain bag winding on a special shaft.
- **WARNING!** Insufficient rate of grain unloading out of the bag with excessive winding speed of the shaft may rupture the bag due to excessive tension.
- If the unloading process is paused, make sure there is no excess tension of the bag on the shaft. This will reduce the risk of the bag rupture.

6 PACKAGE CONTENT

The package includes: one bag, adhesive tape, 1.5 m rope (2 pieces), ruler, user manual, and warranty.





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WARRANTY FOR «HARWELL» GRAIN (SILAGE) BAG

This warranty covers bags for grain storage (hereinafter referred to as «Goods») produced by «Planet Plastic» LLC (hereinafter referred to as «Manufacturer»).

The warranty includes manufacturing defects as a result of which Goods can lose its functional performance. The Manufacturer is obliged to perform warranty repair of any Goods with an identified manufacturing defect, and in case of repair failure replace the Goods. This warranty does not apply to products stored in the Goods.

The warranty period is 12 months of warehouse storage, and 12 months of exploitation.

WARRANTY TERMS AND CONDITIONS

- The Goods should be used at ambient temperature from -50°C to +50°C.
- Conditions of the Goods storage should be followed.
- The requirements specified in the «User Manual» should be followed.
- In case of detection of any manufacturing defect of Goods, the Manufacturer must be notified in written during 24 hours from the moment of detection, providing him a detailed description and photo report of a defect, as well as documents proving the date of Goods purchasing.

WARRANTY OBLIGATIONS WILL BE NOT FULFILLED IN THE CASE OF:

- The warranty period has been completed.
- The Goods have been reloaded with grain after a cycle of loading and uploading.
- There are no documents proving that the Goods are produced by the Manufacturer.
- There are no documents proving the date of the Goods purchasing from the Manufacturer.



- The storage conditions of the Goods are not complied.
- The Goods have been used in not recommended temperature conditions.
- The requirements of the «User manual» are not complied, and the Goods have been misused.
- For grain loading into the Goods, the equipment with specifications not relevant/not suitable for these Goods has been used.
- The Goods have been damaged, and it is not a manufacturing defect.
- A bag contacts chemicals that changed its composition, specifications and operating performance.
- A bag has been damaged due to a natural disaster and/or environmental collapse (fire, earthquake, flood, lightning, storm, falling trees, and hail).
- There are damages caused by wild or domestic animals.

Herewith «Planet Plastic» LLC confirms the use of high quality raw materials for the production of finished bags for grain storage and their compliance with the TU 22.2-32375670-002:2019 requirements and optimal operation specification.





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