

**TURNKEY INNOVATIONS LIMITED**

**PURDUE IMPROVED CROP  
STORAGE (PICS) BAG**

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# BACKGROUND

- The PICS bag was developed with technology by Purdue University in USA in 2007
- The bag was initially developed for storage of Cowpeas but has been found effective for most grains
- The Purdue Improved Crop Storage (PICS) technology, is a triple layer bag composed of two polyethylene bags and one outer woven polypropylene bag

## **BACKGROUND (Cont..)**

Purdue University issues licences to the bag manufacturers worldwide and selects vendors for the different countries.

A major effort to disseminate PICS bags in West and Central Africa began in 2007.

25 countries in Africa now use this bag.

# RATIONALE FOR THE BAG

- With South Sudan coming out of the conflicts, more and more farmers are starting to produce more grains than they need for immediate consumption
- The PICS bag will help the farmers to preserve their grains for a period of up to 2 years without loss in quality
- This will improve household food security
- The farmers will not need to quickly sell off their produce during the bumper period when the prices are low thus improving their income

# RATIONALE OF THE PICS BAG (Cont.)

- Farmers would not need to use pesticides that are some times ineffective and can be dangerous to humans.
- Donor agencies & NGOs that store and distribute grains for humanitarian assistance will not need to worry about pests and rodents while the grain is in storage.
- Post-harvest storage losses of grain to insects are at least 30% in Sub-Saharan Africa.
- There are many control methods but most are minimally effective, expensive, not scalable, or present health hazards.

# HOW DOES THE PICS BAG WORK

- The PICS bag works like other hermetic containers, by limiting the supply of oxygen to insects living in stored grain.
- After PICS bags are closed, insects in stored grain use up much of the oxygen left inside the bag.
- When oxygen becomes too low, the insects cease feeding, and stop growing and reproducing; this prevents serious damage to the grain.

# USE OF PICS BAG - PROCEDURE

- The triple layer bag consists of two high density inner polyethylene plastic bags (inner liners) and a third outer sack (a woven polypropylene bag).
- PICS bags should be handled carefully to prolong their use and effectiveness.
- Buy PICS bags from recognized vendors.
- Make sure the bags being sold are genuine, not counterfeits.
- The bag should have the PICS logos displayed on both sides of the woven bag.
- The two inner liners should be thick and fairly opaque

# USE OF PICS BAG – PROCEDURE

(Cont..)

- Store only dry and clean grain that contains no debris. This will minimize damage to the inner liner which could diminish effectiveness.
- Drying the grain adequately before storage may help reduce the infestation, maintain seed viability, and minimize mold growth.
- Separate the three bags.
- Check the integrity of the two inner liners for holes and tears.
- Assess whether the bottom of both liners are well sealed.

# USE OF PICS BAG – PROCEDURE

## (Cont..)

- ❑ Pour a small amount of grain into the first liner to allow it to be more easily inserted into the second liner; then put both liners into the woven sack.
- ❑ Fold the lips of the three bags together - from inside out.
- ❑ Fill the inner bag with grain while shaking gently to eliminate pockets of air.
- ❑ Make sure no grain gets between the liners.
- ❑ Ensure a lip remains at the top for tying. Pack the grain tightly to remove air.

## USE OF PICS BAG – PROCEDURE (Cont..)

- Step 1: Gently twist the lip of the most inner liner, fold it over and tie
- Step 2: Tuck the knot from the first liner inside and re-peat for the second liner.
- Step 3: Finally, tie the woven bag. Be sure to fold and tie each bag separately.
- Store PICS bags away from sunlight or extreme heat.
- Exposing bags to sunlight for long periods of time may damage the woven bag and reduce its durability/usefulness.

## USE OF PICS BAG – PROCEDURE (Cont..)

- Store PICS bags on an elevated platform and away from walls to facilitate inspection and minimize rodent attacks.
- Inspect PICS bags at least once a month
- Keep PICS bag sealed at all times during grain storage. If grain must be removed for home use or sale, ensure that excess air is pressed out and the bag is resealed immediately.

# OUR STRATEGY

- To keep the price of the bag as low as possible to make it affordable by the local people.
- The donors/NGOs & Government to help in popularizing the bag by initially buying and distributing the bags to farmers.
- Gradually the farmer should meet part of the cost of a bag to attach real value to the bag and eventually be able to buy it without support.
- We will appoint and train private sector vendors to be able to stock and sell the bag with time.

# PRICING

- We plan to sell a 50kg bag below \$2.5 per bag, a 100Kg bag below \$3 depending on quantity and logistics.
- This assumes that the bags will be imported in the names of the donor/NGO to benefit from the existing tax exemptions, otherwise taxes have been estimated at an additional \$0.50 (50cents) per bag.

# Useful Links

Here are a few links that would help your staff understand PICS.

[https://picsnetwork.org/resources/?tab\\_id=Flyers+and+Brochures](https://picsnetwork.org/resources/?tab_id=Flyers+and+Brochures)

Under resources <https://picsnetwork.org/resources/> there are several links to different videos. 0

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■ THANK YOU FOR THE ATTENTION

Q & A