

TECHNICAL SHEET

Triple bagging " sac pics " technology

Triple bagging technology for the conservation of cowpeas

The synthetic fabric "peak bag", lined on the inside with two plastic bags (triple bottom), ensures that cowpea can be stored over a long period of time without the use of chemicals (RECA, 2012). The triple-bottom technology results from the fact that once the bags containing the cowpea are hermetically sealed and encased in each other, any air entry is impossible, resulting in the death of the insects inside and the cessation of the reproduction cycle (RECA, 2012).

The conservation technique developed is that of triple bagging (Folefack et al, 2013). As the name suggests, it consists of two polyethylene bags, each 80 microns thick and a third (outer) bag - a woven polypropylene bag (Folefack et al, 2013). The mechanism developed here is that of completely preventing air from entering the bags, thus larvae deposited on cowpea grains in the field will not be able to develop and most eventually die (Folefack et al, 2013).

Until now, researchers explained that cowpea bruchid cannot live without breathing air, which is why storing cowpea in airless environments is an effective method of controlling this insect (this is the principle of storing cowpea in ashes) (RECA, 2012). But according to results recently published by Nigerian and American researchers, the bruchid dies less from suffocation, than from lack of water (RECA, 2012). Therefore researchers insist that cowpeas be as dry as possible during harvest (RECA, 2012). Done correctly, the results brought by this technology are a total elimination of bruchid losses (RECA, 2012).

Components of the "pics bag"

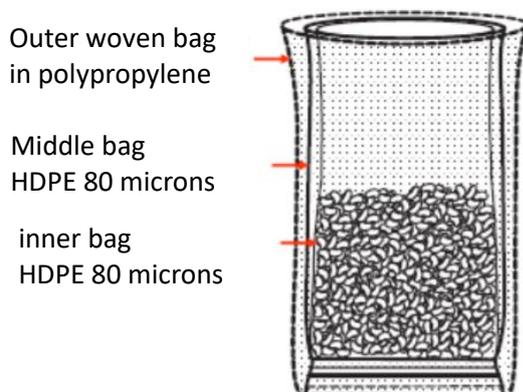


Figure 1: "bag pics" containing cowpeas (source: RECA, 2012)

Characteristics of the technology

- The triple bagging is a simple, effective, and pesticide-free technique for the durable conservation of your cowpeas. You can keep your cowpeas if you want, sell them at a better price or consume them at any time without risk of poisoning. It consists of a system of 3 bags. The two inner bags are made of high-density polyethylene with low air permeability. The PICS bag reproduces the conditions of a hermetic storage. Once closed, with the respiration of the bruchids, a low oxygen and high CO₂ environment is created inside the bag. The metabolism of the insect is slowed down and the damage stopped. After 4 months of storage, more than 95% of the bruchid larvae and adults die.
- In Niger, cowpea production is estimated at 1,500,000 tons in recent years. If we take only 10% of the loss on only half of the harvest, i.e., 10% of 750,000 tons, the total loss is estimated at 75,000 tons.
- At 200 F/kg of cowpea, the amount of losses would then amount to ... 15,000,000,000 CFA.
- If the actions of popularization / diffusion of this technology allow to reduce by only 10% this volume of losses, that will represent 1,5 billion F.CFA of additional income.

Bibliographic references

Folefack D.P., Sobda A.G., Tengomo S., Boukar O., Tahirou A. (2013) : Vulgarisation de la méthode du triple ensachage pour le stockage amélioré du niébé en zone sahélienne du Nord Cameroun : Enjeux et perceptions paysannes ; TROPICULTURA, 2013 ; 170-178p.

RECA (2012) : Le triple ensachage pour la conservation du niébé - Un point de situation ; Note d'information / Technologies et techniques n°2 ; 7p.

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https://www.researchgate.net/publication/259705512_Vulgarisation_de_la_methode_du_triple_ensachage_pour_le_stockage_ameliore_du_niebe_en_zone_sahelienne_du_Nord_Cameroun_Enjeux_et_perceptions_paysannes ; 08/09/2021 at 09h31

Other references

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