



Drying seeds and produce

A novel and smart way of drying and storage of seeds and produce

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Growing world population

Reduction of arable land

Limitation of primary resources

Increased stress on agriculture

Producing more food?



1 / 3 of the food produced worldwide is wasted



FOOD WASTE
is a major worldwide problem 

**1.3
billion
tons**

of all edible food produced worldwide is wasted or lost each year. That is 1/3 of the food produced annually.



A well known principle in postharvest handling of fresh produce.

Practiced routinely on a worldwide scale with enormous impacts and proven results. However, it requires large infrastructural investment and continuous energy input to maintain refrigerated transport and storage facilities.

Cold chain concept

As a concept is essentially unrecognized as a postharvest strategy.

Implementing the dry chain has a greater potential impact than the cold chain, with minimal infrastructure and no energy inputs after initial drying.

Dry chain concept

Make it
Keep it **DRY**



Considerations

- ▶ Maximum sun drying is often insufficient for storage
- ▶ Sun drying is not possible during rainy season
- ▶ Losses due to rodents, insects and birds
- ▶ Deterioration of quality and nutritional value
- ▶ Fungal infections & mycotoxins, health risks
- ▶ Humidity has a negative impact on temperature tolerance



DryStore application

Supported by seed companies, improving farming quality



HORTICULTURE
INNOVATION LAB

UCDAVIS
UNIVERSITY OF CALIFORNIA

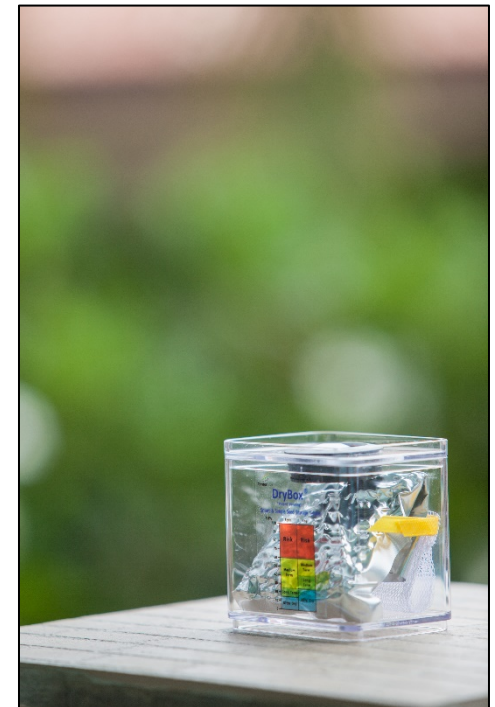
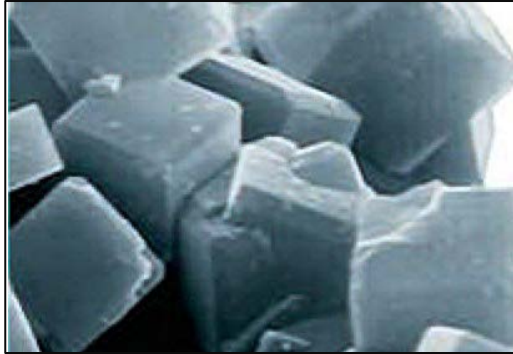


 Centor Group

Drying beads



Drying Beads, a continuous improvement



DryBox & DrumDry



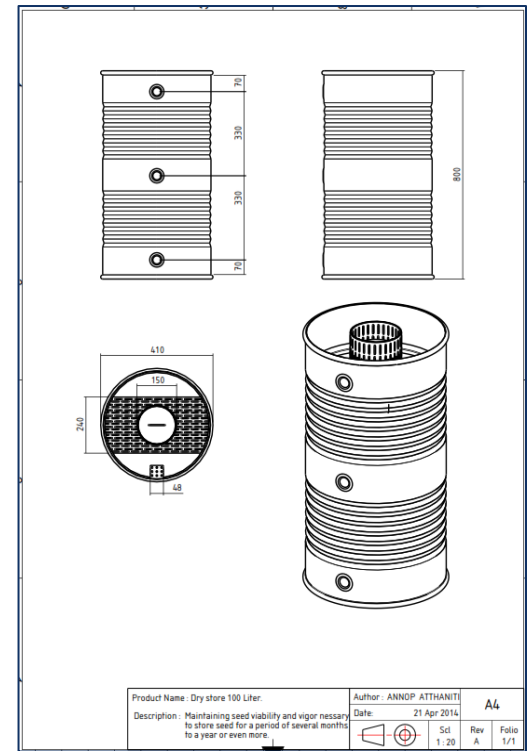
DryBox®

"Patent Pending"

Smart & Simple Seed Storage System

RH%	Agro.	Veg.
100	Risk	Risk
90	Risk	Risk
80	Risk	Risk
70	Risk	Risk
60	Risk	Risk
50	Medium Term	Medium Term
40	Medium Term	Long Term
30	Medium Term	Long Term
20	Long Term	Long Term
10	Ultra Dry	Ultra Dry
0	Ultra Dry	Ultra Dry

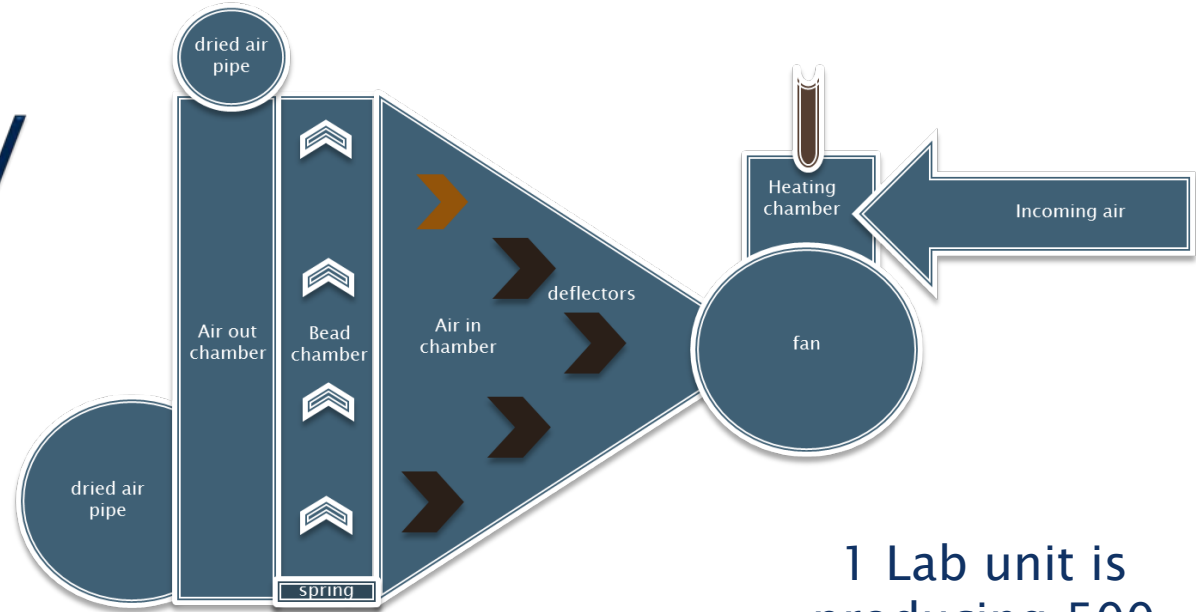
1L
8L
16L
50L
100L



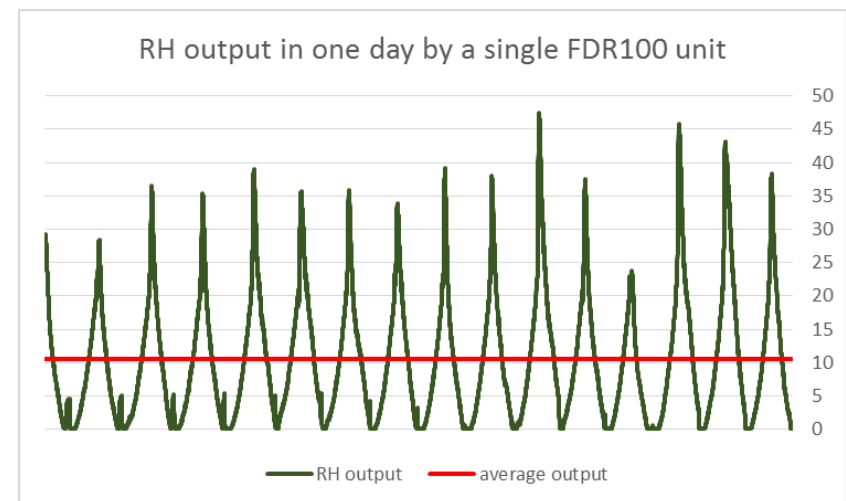
Product Name: Dry store 100 Liter
 Description: Maintaining seed viability and vigor necessary to store seed for a period of several months to a year or even more.
 Author: ANNOP ATTANIT
 Date: 21 Apr 2014
 Rev A
 Folio 1/1



FlexiDry

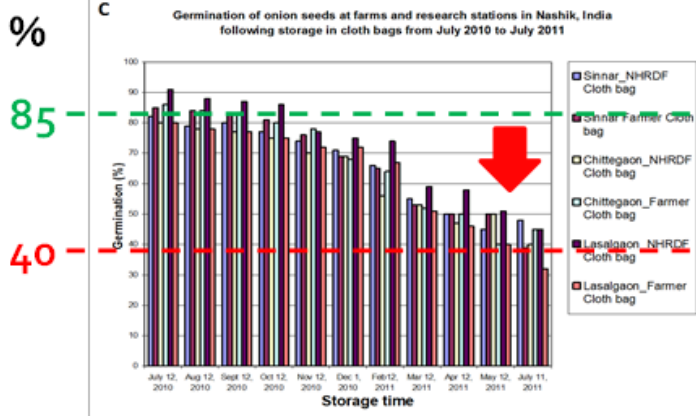
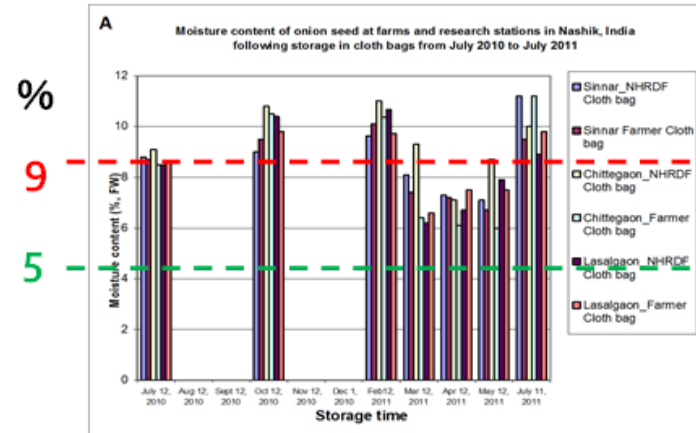


1 Lab unit is producing 500 qbm/hr with an average RH <5%

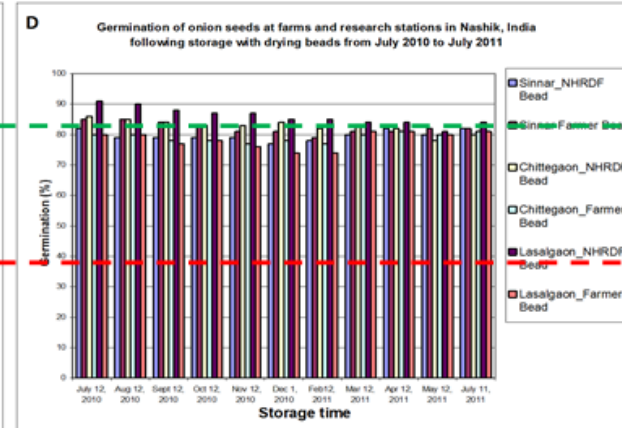
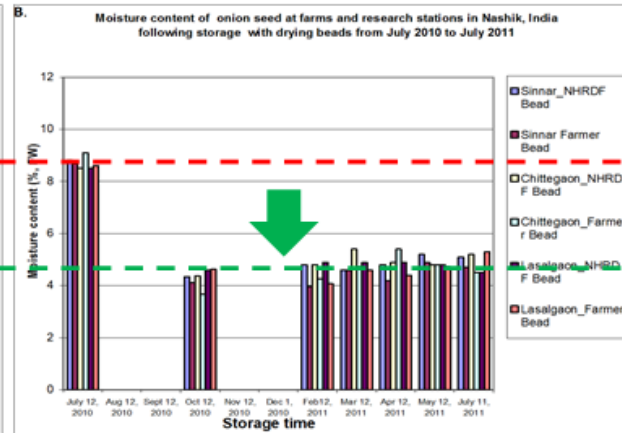


Some results on storage & germination

Open bags



With beads

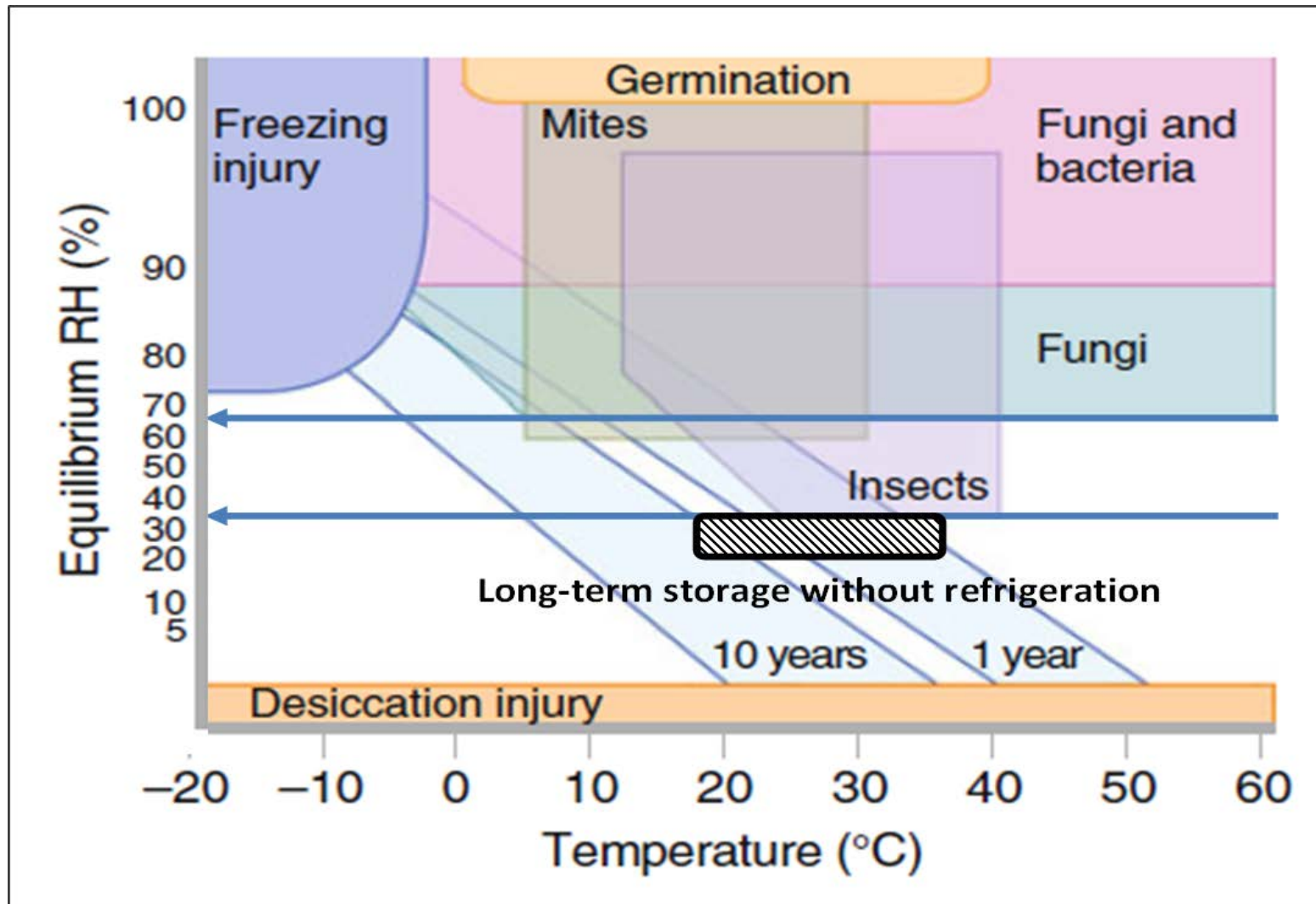


Stored for 1 year by farmers

Seed MC reduced by 4% with beads.

Germination decreased by 45% in open bags.

Impact on insects, fungi & bacteria and thus on mycotoxins and aflatoxin



Thank You for the Attention



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