



Humidity control for the storage and conservation of seeds

The main reason seeds are stored is so they can be supplied over time in different locations. It must therefore be possible to conserve them for use over a reasonable period of time.

The use of seeds responds to a variety of demands. Firstly, farmers have to conserve their seeds for short periods of time until the next sowing season, while germplasm banks do the same for long periods of time; in some cases indefinitely. There are also forestry and restoration uses applied immediately. New challenges faced by modern day society necessitate the employment of phylogenetic resources in support of sustainable development. That is why it is essential to provide the conditions and resources needed for the manipulation and conservation of seeds before use. As a consequence, large sums of public and private money are invested in this area.

Reasons for controlling humidity

The lifetime of orthodox seeds most cultivated and wild plants- increases as their humidity content falls. This content is in balance with the level of relative humidity in the air around them. If the idea is to conserve them for just one season, humidity levels in balance with 65%RH is enough. For storage for a period of 2-3 years, they should be in balance with an ambient relative humidity of 45%. However, when the objective is stable storage over the long term, they must be in balance with 25% relative humidity.

Since most storage temperatures are low (below 20°C), the condensation drying method becomes uneconomic and precision control of the humidity is difficult to achieve and complicated to maintain. That is why most seed banks and storage facilities use desiccant rotor air dehumidifiers. This technology is capable of drying to very low humidity levels (required in the storage of any kind of seeds), at low temperatures and with total control over %RH values in the ambient air of the warehouse or seed bank.

Fisair has supplied consultancy and units to the most important seed banks and storage facilities in the world. Its units achieve the mission of safeguarding a valuable asset without technical problems working 24 hours day, 365 days a year over many years.

One of many examples worthy of mention is the storage of seeds centred on extended crop use for the multinational Hy Tech Seeds. We have also worked for the private company that has made the most progress in the field of biotechnology, Monsanto. And our units also play an essential role in public seed banks such as the Spanish Centre for Phylogenetic Resources INIA , and the Polytechnic University of Madrid.



An optimum solution

The new DFRIGO series is especially designed for this application. It has a high-capacity desiccant rotor dryer, top-quality insulation, heat recovery to prevent heat transfer to the chamber, and high-efficiency EC fans.



The DFRD series is ideal for small chambers in which doors to rooms are opened very infrequently. Fisair has deployed these products in major companies.



DFRD-045-E in Hy-Seeds (Cairo, Egypt)



DFRA-0130-E in Monsanto (Ica, Peru)

The DFRA series is ideal for large chambers, or those in which doors are opened more frequently. These units are able to achieve conditions of very dry air, and work very well in positive conservation chambers. Fisair has deployed these units in well-known multinationals.