

A Study on the Storage of Rice and other Seeds

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A room or a vessel preserving rice or wheat seems to change very little with time the humidity of the air in it. To examine this, a hygrometer and a thermometer were placed inside a large glass bottle partly filled with rice and were read everyday for about a year. The results are represented in Fig. 1 and Fig. 2 from which it has come to light that the relative humidity in the bottle remains almost constant, while that in the room undergoes a considerable change and with regard to temperatures, both of them in and out the vessel are changing in parallel with a large amplitude. Again several coarse linen bags containing various seeds were kept suspended in the air from the ceiling. The weights were measured every morning throughout a year and it was found that they also vary proportionally with relative humidity of the surrounding air.

These two experiments indicate clearly that each sampling of the seeds accomodates its dryness to the surrounding humidity taking in or out the vapor. A remarkable fact is to be also mentioned that according to the latter experiment the rich amount of protein in seeds makes them increase the degree of water absorption, for example soy-bean is the best absorber of water, but rice the poorest as tabulated below.

Kind of Seed	Range of Weight Variation	Protein-content
Soy bean	4.52	43
Broad bean	4.31	29
Peanut	3.74	28
Rape	3.16	30
Red bean	2.87	22
Wheat	2.72	13
Rice	2.66	8

種子貯藏の研究

米麥貯藏の部屋の湿度が時と共に變化するように見えるので、これを調べるため、毛髮湿度計と寒暖計を大硝子瓶(5,699cc)の籾(重量500g,容積約902cc)を入れたものの中に置いた。關係湿度と氣温とは毎朝10時測定して約1ヶ年間に及んだがその結果は圖1、圖2に示される。それによると瓶中の湿度は殆んど一定なるに反し、瓶外室内の湿度は大いに變化してい

る。そして瓶内外の氣温は全く平行して同振幅を以つて變動する。

次に色々の種子を入れた數個の袋を天井から垂らしておいて、毎日その重量變化を測定したところ、重量は周圍の關係湿度に比例して變化した。

この二つの實驗から種子はその濕潤度を周圍の湿度に順應して、水蒸氣を取捨しつつあることが明らかになつた。一つの面白い事實は種子が蛋白質を含むこと多い程水蒸氣を多量に取入することである。この事から大豆は貯藏し難く米は貯藏し易いと考へられる。

Fig. 1 Annual variation of relative humidity within and without a glass bottle half filled with rice, thick lines denote relative humidity within, fine ones those without.

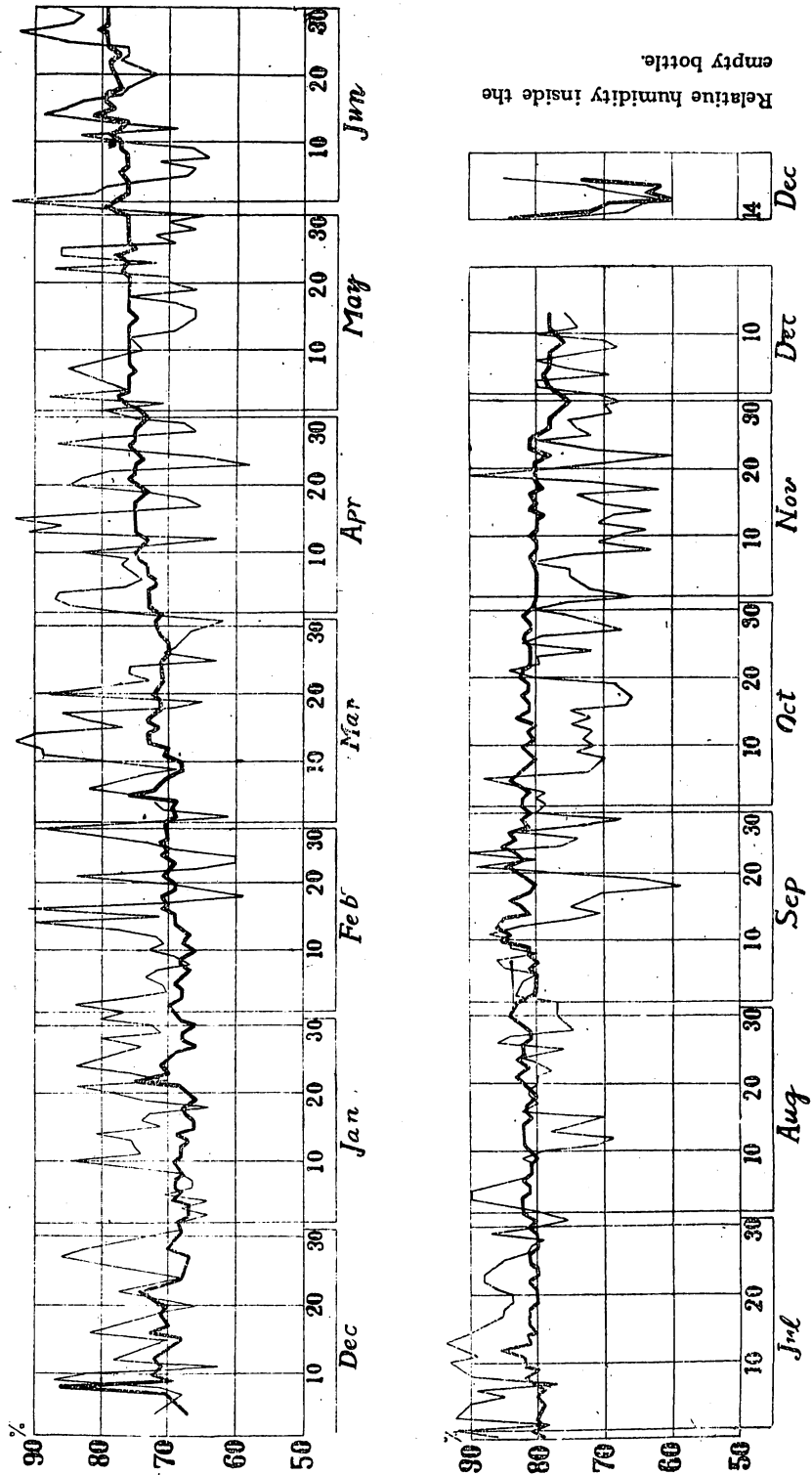


Fig. 2 Annual variation of air temperature within and without a glass bottle half filled with rice,
 Fine lines denote air temperature within, dots those without.

