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Abstracts

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Abstract 218**Development of a computational module for stationary drying of seeds****Guimarães Daniel, Baudet Leopoldo, Villela Francisco, Luiz Panozzo, Marcelo Machado**

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The objective of this research was to develop a microcomputer program to determine drying time of seeds in a fixed bed as well as to determine the air flow resistance of soybean seeds in a test metal bin. Three lots were stored in a perforated floor drying bin 1.86m diameter and at a seed depth of 1.20m. The air flow rate ranged from 8.57 to 31.08 cubic meters / minute / square meter and heating air was increased 5 °C over ambient temperature with electrical resistance until seeds were dried to 12% moisture content (wet basis). Soybean seeds were previously cleaned through an air-screen cleaner machine. The experimental results were compared to results of developed program concluding that the model and equations used were valid to simulate soybean seed drying in a fixed bed. The pressure drop measured was smaller than the Hukill & Shedd (1955) equation with coefficients of the ASAE D272.3 (1999). New Hukill & Shedd (1955) expression coefficients were established.

Abstract 219**Physiological quality of *Triticale* (*x. triticosecale* Wittmack) stored seeds associated with the natural incidence and survival of seed-borne fungi****Priscila F. Medina and Maria A. de Souza Tanaka**

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Triticale seeds of the IAC-2 cultivar had a germination of 85% after harvest and natural incidence of the following pathogenic fungi: 34.5% of *Pyricularia grisea*, 12% of *Bipolaris sorokiniana*, 15% of *Fusarium graminearum* and 35% of *Alternaria alternata*. These seeds were stored at 10 °C and in natural ambient conditions for twelve months. Seed physiological quality was evaluated at bimonthly intervals by the germination, accelerated aging, tetrazolium and field emergence tests and fungal survival was evaluated by the blotter test. The seeds stored at 10 °C maintained the same level of germination, viability and vigor for twelve months even though the incidence of fungi remained almost unchanged too. The germination and viability of seeds stored in natural ambient conditions started to decrease after four months due to an increasing level of dead seeds. The fungal level remained almost unchanged for two months and decreased continually until the end of the storage period, attaining very low values. The incidence of these fungi did not affect germination, because the results of this test were similar to those obtained in the tetrazolium test. However the level of dead seeds increased mainly as the *Penicillium* spp. storage fungus level started to increase, after a six-month storage period.

Abstract 220**Sensitivity of cupuassu (*Theobroma grandiflorum* (Willd. ex Spreng.) Schum.) seeds to desiccation****Eniel Cruz and Silvio Cicero**

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The response of seeds to reduction in moisture content will determine whether they can be stored by conventional methods. The objective of this study was to verify the effect of desiccation on the germination and vigor of cupuassu (*Theobroma grandiflorum* (Willd. ex Spreng.) Schum.) seeds. The following seed moisture contents were tested: 57.1%, 53.7%, 49.8%, 46.5%, 41.4%, 35.4%, 28.3%, 23.2%, 17.4%, 15.5% and 14.6%. Desiccation of seeds to 41.4% did not affect germination and vigor. However below 35.4% a progressive deterioration of seeds was detected which led to seed death when

moisture reached 14.6%. The observed sensitivity of cupuassu seeds to a reduction in moisture content suggests ideal storage conditions under high moisture content.

Abstract 221

Long term conservation of seed germplasm

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The long term conservation of seed germplasm aims to guarantee for many decades, the survival of seed species which are the base for food and agriculture. The Embrapa Genetic Resources and Biotechnology is the research institute responsible for that activity. The seeds are dried to low levels of moisture content (3 to 7%), then, they are packed in non-permeable aluminum foil bags. The bags are identified and stored in cold rooms at -20°C. Germination tests are performed to evaluate the seed viability prior to storage and after each 10 years. The seed health tests are performed to evaluate the occurrence of associated seed diseases. The control test results indicated that germination levels have been maintained. Unfortunately, the seed pathogenic fungi has also been maintained. The passport data and the activities related to the storage process of each accession are documented in the database bank of the Brazilian Information System of Genetic Resources (SIBRARGEN). The Brazilian Germplasm Base Collection contains around 100,000 accessions of 690 botanic species (native and exotic) such as: cereals, legumes, forages, oilseeds, horticultural, fruit trees, medicinal plants, forest and fiber plants. This collection represents an important reservoir of the national genetic diversity as it encompasses and preserves the maximum of the existing gene pool.

Abstract 222

Soybean seed in base collection

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Gene banks are the repositories of dwindling genetic variability of cultivated plants. Such collections are maintained as a resource for continued progress in plant breeding. Embrapa Genetic Resources and Biotechnology with Embrapa Soybean are working toward increasing and maintaining the genetic variability of soybean through the introduction of germplasm to support its breeding program. Presently, the Soybean Base Collection (*Glycine max*) has around 6,927 accessions from different countries. This collection is maintained and conserved in chambers of the Embrapa Genetic Resources and Biotechnology, at -20°C, without humidity control, in aluminum foil bags hermetically closed. The seeds are previously dried to 6% to 7%. High germination rate (80%) and more than 1,500 seeds for each accession are required for long-term conservation. Germination tests are performed at the beginning of the storage and monitoring tests are done periodically. All information regarding the accessions is being monitored by the Brazilian Genetic Resources Information System (SIBRARGEN). After twenty-two years of storage the results of germination tests applied to 394 soybean accessions indicated that germination does not decrease significantly when the initial germination rate is above 80%.

Abstract 223

Extended storage of sorghum seeds (*Sorghum sudanense* (Piper) Stapf)

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Sorghum sudanense has attracted great interest as an alternative to produce dry matter in a no-tillage system. The lack of information about sorghum seed conservation and how to keep initial quality for extended storage time justified this research. The experiment had as its objective to evaluate the effects of extended storage, in four environmental conditions, on sorghum seed quality from different origins. Five