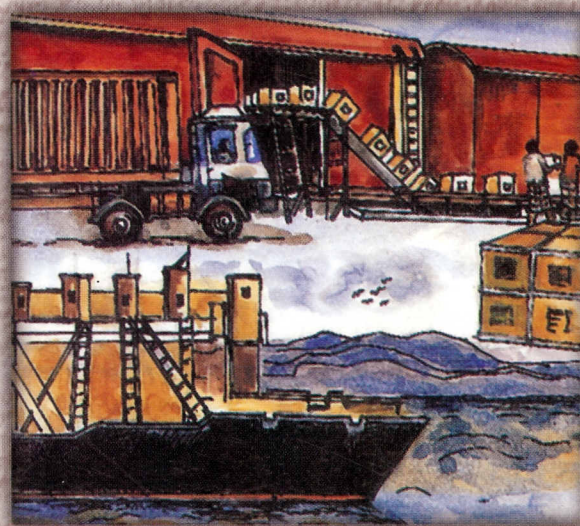
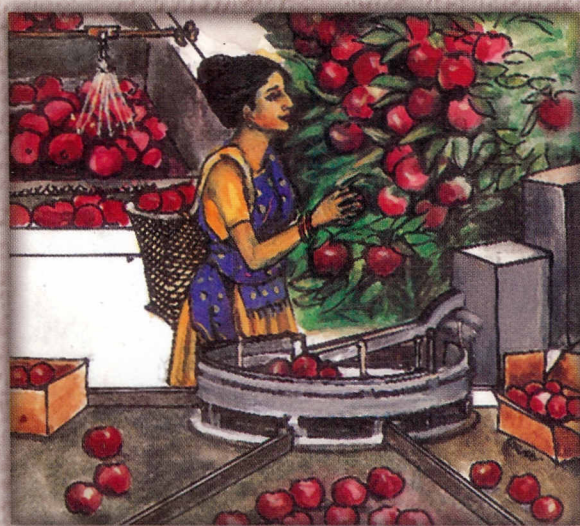




SAARC

Postharvest Management in Agriculture

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Postharvest Management in Agriculture **SAARC Bibliographical Database**

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SAARC Agricultural Information Centre (SAIC)

SAARC Agricultural Information Centre (SAIC)
BARC Complex, Farmgate, Dhaka 1215, Bangladesh

Published : 1995

Cover design : Mafruha Begum

Price : US\$ 5.00 for SAARC countries
US\$ 8.00 for other countries

Chandel, A S and Kamal, R M

Postharvest Management in Agriculture: SAARC bibliographical database.

Dhaka: SAARC Agricultural Information Centre, 1995.

ii, 231, xxxv p.

1. Postharvest technology, bibliography. 2. SAARC Agricultural Information Centre. i. Jt. Author.
ii. Title.

Published by : Director, SAARC Agricultural Information Centre (SAIC)

Printed at : Panir Printers, 9 Nilkhet, Dhaka 1205

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stored wheat: a survey at North Bihar (India). *Journal of Stored Products Research*, 26: 4, 223-226; 28 ref.

Fifty stored wheat samples (25 each of insect pest-free and infested) were collected from northern Bihar, India. Of the 4 major pests recorded, *Sitophilus oryzae* was the dominant insect, followed by *Tribolium castaneum*, *Rhyzopertha dominica* and *Trogoderma granarium*. *Aspergillus flavus* was recorded in all samples: infection in insect-damaged samples was 87% and in insect-free samples 25%. Aflatoxin contamination was found in 19 and 2 of the insect-damaged and insect-free lots, respectively. The role of insect pests in making wheat grains vulnerable to *A. flavus* infection and subsequent aflatoxin production is discussed.

272 VIR, D. 1986. **Storage disease of wheat. Problems and progress of wheat pathology in South Asia.** New Delhi: Malhotra Publishing House, p. 296-305; 48 ref.

This chapter provides information on the mycoflora of stored wheat grains and seeds, the harmful effects of fungi on stored wheat (including discoloration, reduced seed germination, changes in nutritional content of grain and mycotoxins), and control.

SORGHUM

Postharvest handling

273 MALLESHI, NG; DAODU, MA; CHANDRASEKHAR, A. 1989. **Development of weaning food formulations based on malting and roller drying of sorghum and cowpea.** *International Journal of Food Science and Technology*, 24: 5, 511-519; 24 ref.

Sorghum and cowpea were steeped in water for 16 h, allowed to germinate for 72 and 24 h, respectively, then dried to about 14% moisture. Roots and shoots of sorghum sprouts were cleaned off and the devegetated malt was kilned at 70°C, moistened with 3% added water, heaped for about 10 min, milled and sieved to obtain debranned malt flour. Cowpea sprouts were split, dehusked, kilned at 85° and milled. Malted sorghum and malted cowpea flours were blended in the proportion of 70:30 to prepare the malted weaning food (MWF). A precooked weaning food (RDF) was prepared by roller drying a cold-water slurry consisting of 70% pearled sorghum flour and 30% toasted cowpea flour. The cooked paste viscosity of MWF was lower than that of RDF and the blend of raw sorghum (70%) and cowpea (30%), at all comparable slurry concentrations. The protein content of MWF was 13.4% and that

of RDF was 13.0%, but the available lysine content of MWF protein was 3.85% and that of RDF protein was 2.95%. The protein efficiency ratio for MWF (2.26) was significantly higher than that for RDF (1.87).

274 RAO, A; VIMALA, V. 1993. **Efficacy of tricalcium phosphate on the storage quality of sorghum flour.** *Journal of Food Science and Technology - Mysore*, 30: 1, 58-59.

The efficacy of tricalcium phosphate (2%) as pre-storage treatment in whole and dehulled sorghum flour has been studied. Treatment with tricalcium phosphate controlled insect infestation and associated changes in fat acidity, alcoholic acidity, and lipase activity. A positive correlation between fat acidity and lipase activity was observed. Dehulling prior to milling contributed to better storage quality.

275 SHELAR, VR; BAPAT, DR. 1991. **Effect of storage conditions on viability and vigour in sorghum.** *Annals of Plant Physiology*, 5: 2, 176-182; 14 ref.

The effects of storage temp. of 20 or 40°C and 45, 60 or 90% RH on seed moisture content, vigour and germination and seedling growth of sorghum cv. CSH-5, CSH-9, SPV-462 and SPV-504 were studied after 180 or 300 d of storage. Storage at 20° and 45% RH gave the highest germination of around 80%. Seeds kept at 40° did not germinate after 180 d storage irrespective of RH. Seed viability, root and shoot length and vigour of all genotypes decreased and moisture content increased with storage time.

Storage decay

276 KRISHNASAMY, V; RAMASAMY, KR. 1989. **Effect of date of harvest on seed storability and seedborne infection by pathogens in CSH 5 hybrid sorghum.** *Madras Agricultural Journal*, 76: 9, 529-532; 7 ref.

Field trials indicated that seed crops of this cultivar should be harvested at c. 45 d after half-bloom in order to obtain seed with maximum storability and the least contamination by seedborne fungi.

277 RAO, VK. 1991. **Effect of certain indigenous plant materials on grain mycoflora of sorghum during storage.** *Indian Journal of Mycology and Plant Pathology*, 21: 3, 268-269.

278 SHAH, SE; MARIAPPAN, V. 1990. **Effect of seed dressing fungicides on the storage and viability**

of sorghum seeds. *Madras Agricultural Journal*, 77: 7-8, 278-280; 4 ref.

Sorghum cv. Co19 seeds were tested for viability after 3, 6 and 9 months storage following treatment with 0.2% thiram, Vitavax [carboxin] and captan, 0.4% wettable S, and 0.2 and 0.4% Panotine [guazatine acetates] and Panoram [fenfuram]. Seed viability after 3 months storage was 81.66-93%. After 9 months storage, thiram, Vitavax and 0.4% Panotine and Panoram maintained 66-73.66% seed viability compared with 45% for untreated seeds.

MAIZE

Storage and storage decay

279 AHMED, J; ELIAS, SM; ULLAH, MM; HOQUE, A. 1990. **Farm level processing, storage and utilization of maize in Bangladesh.** *Economic Affairs Calcutta*, 35: 1, 57-62; 9 tab., 3 ref., BLDSC.

Maize is a highly versatile crop which has multiple uses. However, although production technology is available, its adoption by Bangladeshi farmers is low. This paper assesses the existing storage methods and the losses incurred in storage; studies the consumption pattern; examines the processing methods and concomitant costs; and suggests future research priority areas. A survey was made of 117 farmers in four districts who were interviewed by pre-designed questionnaire. It was found that farmers store grain in jars, tins and pots. Extensive pest-proof storage facilities are needed and postharvest shelling and drying facilities need improvement.

280 CHATTERJEE, D. 1989. **An effective formulation for mould- and aflatoxin-free storage of corn.** *Letters in Applied Microbiology*, 9: 1, 25-28; 3 ref.

The ability of cinnamon oil, alone or with sodium chloride, to protect stored maize from fungal invasion and subsequent deterioration was investigated. *Aspergillus flavus* and *A. glaucus*, the predominant storage fungi, produced aflatoxin and caused a loss of germinability. Oil treatment at a non-phytotoxic level of 5 $\mu\text{l/g}$ maize in combination with 10 $\mu\text{l/g}$ NaCl solution (5%) synergistically inhibited fungal infection, growth, aflatoxin production and the loss of germinability. However, treatment with the oil alone was only effective at a phytotoxic level of 20 $\mu\text{l/g}$ maize.

281 CHATTERJEE, D. 1990. **Inhibition of fungal growth and infection in maize grains by spice oils.** *Letters in Applied Microbiology*, 11: 3, 148-151; 8 ref.

Essential oils of 12 spices were tested for inhibition of fungal infection and mycelial growth in postharvest maize grains during storage. The oils of cassia, clove ($\geq 30 \mu\text{l/g}$ grain), star-anise ($\geq 40 \mu\text{l/g}$ grain), geranium ($\geq 30 \mu\text{l/g}$ grain) and basil (50 $\mu\text{l/g}$ grain) inhibit the in vivo mycelial growth of established seedborne infections of *Aspergillus flavus*, *Curvularia* [*Cochliobolus*] *pallidus* and *Chaetomium indicum* as well as preventing infection following inoculation with *A. flavus*, *A. glaucus*, *A. niger* and *A. sydowii*. The oils also preserved the grain from natural *A. flavus* infection during the experimental period. Nutmeg, ginger and cumin oil (all at 50 $\mu\text{l/g}$ grain) could control mould growth and grain infection for only a brief period.

282 CHATTERJEE, D; CHATTOPADHYAY, BK; MUKHERJE, SK. 1990. **Storage deterioration of maize having pre-harvest infection with *Aspergillus flavus*.** *Letters in Applied Microbiology*, 11: 1, 11-14; 6 ref.

Deterioration during storage of 2 lots of Ganga maize contaminated in the field by *A. flavus*, equally matured and freshly harvested and stored under the same natural atmospheric conditions was compared. The rate and extent of grain deterioration were much less in lot 2 than in lot 1 which had a relatively high pre-harvest internal *A. flavus* load. However, the deteriorative changes of both the lots could be reduced when the initial *A. flavus* infection was completely eliminated. Furthermore, of these already contaminated lots, and grains selected as free from infection at harvest also suffered less deterioration during storage.

283 DE, D; PRAKASH, S. 1989. **Quantitative losses in the various kernel fractions of some maize varieties in storage due to *Sitophilus oryzae* L.** *Journal of Entomological Research*, 13: 1-2, 57-59; 12 ref.

Feeding by the curculionid *Sitophilus oryzae* was found to depend on, to some extent, the maize variety infested. In the Basi local variety, the endosperm (23.76% loss) was preferred to the pericarp (18.13) and the embryo (0.00), whereas in the AEB composite (White), EC 857, EC 85142 and EHE 200886 the percent loss in the embryo and endosperm was equal. In EHE 20086, the percent loss was less in the embryo (14.75) than the endosperm (23.33).

284 IRSHAD, M; JAVED IQBAL. 1990. **Accuracy of different loss assessment methods for maize during storage.** *Sarhad Journal of Agriculture*, 6: 5, 491-494; 7 ref.

Various methods are used worldwide for determining