

## [KSU/PAU Workshop on Accomplishing Food Security through Novel Grain Storage](#)



Today, agriculture is the source of livelihood for more than 65% of Indian population and accounts for more than 20% of the nation's gross domestic product (GDP). This was stated by Dr. Manjit Singh Kang, Vice-Chancellor, PAU while inaugurating the international workshop on 'Accomplishing Food Security of Stored Grains through Novel Storage Practices' at PAU, today. Dr. Kang said that agriculture sustains industry through supply of raw materials. He elaborated that India achieved self-sufficiency in wheat in 1972 and in rice in 1974 on account of the scientific achievements of farm scientists who developed new crop varieties and matching farm technologies, hard work of farmers and government policies conducive to agricultural growth. The main food security crops are wheat and rice, produced in Punjab, Haryana and Western U.P., which together constitute the food bowl of India, said Dr. Kang adding that Punjab has been contributing about 60% wheat and 40% rice to India's central grain reserve. He delved that the contribution of the food bowl to the central grain reserve is 98% wheat and 65% rice. This remarkable achievement has come at a cost though-underground water table has gone down drastically and soil health has deteriorated, observed he. He elaborated that for many years India has been comfortable in its ability to produce food and feed its people. In 2001 India exported wheat but in 2003 it imported wheat. Dr. Kang expressed a serious concern about India now being on the verge of becoming a foodgrain importing country. He suggested that more investment should be made in agricultural development and grain storage infrastructure. Dr. Kang said that after harvest, foodgrains, wheat and rice, lie in the market place (mandis) under open for months to rot. He appreciated the Union Finance Minister for providing additional funding for development of storage facilities in the last years budget, after the issue of lack of adequate grain storage facilities and consequent wastage of foodgrains in the mandis was discussed with him. The post harvest losses of foodgrains means wastage of our precious water and other inputs used to produce them, he said emphasizing that the research on foodgrain storage structures needed an impetus. Agricultural growth can not be achieved without investment in research and development, he said adding that India lags behind other nations in spending on R & D. India's over all per capita R & D investment is \$ 5.5 as compared to \$ 11.7 for China and \$ 705 for the USA. Quoting the UNDP 2008 report, Dr. Kang said that India's allocation for R & D was just 0.8 % of its GDP as compared to 1.2 % of China, 2.7 % of USA, and more than 3 % of Japan of their GDP. Dr. Kang said that different estimates say that foodgrain production in the country will have to be enhanced to

meet the increasing requirement of its people but question whether we will have sufficient and proper storage infrastructure to take care of the foodgrains.

Dr. Dirk Maier, Professor and Head of the Department of Grain Science and Industry, KSU provided an overview of the organizational detail about the University and said that the endeavour was to educate students and professionals as an effort for human capital development. He discussed the maintaining and monitoring aspects of stored grain quality. He said that it was a challenge to maintain quality of stored products after harvest and before end use adding that quality never improves during storage. He elaborated on the causes of grain spoilage that include moisture migration, condensation, wall caking, surface crusting, biological heating, bolt holes, etc. He explained that sanitation, loading, aeration and monitoring were important steps in relation to management of the grain quality. Dr. Maier discussed how cleaning, caring, pest prevention, aeration, ventilation were important. He said that in developed countries the silos are aerated based upon their temperature and carbon dioxide content on different timings through a computer aided mechanism. He depicted different types of silos structures.

Dr. Jagtar Singh Dhiman, Additional Director of Communication presented an overview of Punjab Agriculture and the role of PAU in addressing constraints of contemporary agriculture in Punjab. He elaborated about the ongoing programmes, state of the art facilities and reprioritized agenda of PAU.

Mr. Puneet Mehandiratta, Deputy General Manager, Adani Agri Logistics Ltd. discussed storage issues in India and elaborated developments taking place in grain handling and storage facilities. He discussed the logistics at Kaithal, Moga and the shipment system. He said that Adani was encouraging farmers for direct delivery to silos for which the Government of India also offers incentives.

Dr. R.T.Patil, Director, Central Institute of Post Harvest Engineering and Technology (CIPHET) discussed bulk storage of foodgrains in production catchments. He said that post harvest losses in food grain sector amount to 8-12 %. Punjab has suffered heavy losses due to damage of wheat stored in the open, said Dr. Patil adding that between 2006-07 and 2008-09 the state lost 16500 tons of wheat lying in the open. He said that the state has a scientific storage capacity of 182 lac ton and that there is a shortage of 44 lac ton storage. He explained a mechanical device for detection of insects in the stored grains and discussed changes in stored grains/products. Dr. Patil explained various components of silos system and emphasized a need to establish silos manufacturing facility in the country. He projected that silos system cost lesser than the godown system.

Mr. I.C.Chadha, Deputy General Manager, Central Warehousing Corporation touched issues related to grain storage in India while Dr. Bh.Subramanyam said that stored grain insect pests were a major threat to food security for which the management strategy needed to be worked out. They also highlighted various chemical and non-chemical methods for management of stored grains pests.

To have a wrap-up, a panel discussion was held with Dr. Dirk Maier, Dr. Bh. Subramanyam, Dr. Jagtar Singh Dhiman, Mr. I.C.Chadha, Mr. Puneet Mehandiratta and Dr. R.T.Patil as panelists.