The above results show that the rapid detection technology of paddy's degree of freshness has great applicability to distinguish fresh and non-fresh paddy in China.

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Fumigation with Ph3 using automatic generation - Presentation of results of recent trials

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Abstract

Fumigation is essential part of preservation of grains, other edible commodity and perishables. Phosphine is most commonly used fumigant since more than 65 years. It is now practically the only fumigant and most commonly used. While fumigating with conventional metal phosphide formulations most common problems or concerns are operator safety, laborious to apply, gas retention in structure, uniformity of gas concentration in the structure, solid residues left in the commodity, limitations in ambient conditions to apply the fumigant and others. Bad fumigation practices lead to failed fumigations. These are blamed on insect resistance. Scientists have noted higher tolerance levels, but not resistance to phosphine. To address all the concerns referred, and limitations of conventional fumigants, we have developed a Phosphine generator and a suitable formulation for use with the same. This is a fully automatic machine. The formulation is granular and dust free. Those using our generators have stopped using conventional formulations of phosphine. The paper presents merits of technology, results of trials in various locations and on different commodity. This is the only system, which ensures uniform distribution of gas in entire structure to give 100 % guaranteed fumigation results.

Browning Mechanism and Process Optimization during MaizeMaize KX7349 Drying

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Abstract

Browning of KX7349 maize during drying occurred mainly in the pericarp layer. Browning was caused by oxidation of water soluble matter in the pericarp layer. Moisture content had no significant influence on browning rate. Drying temperature, drying time and drying method (vacuum drying or hot-air drying) had significant influence on the browning rate. Through lab research, a prediction model for the relationship between browning rate and drying air temperature was developed. Total drying time is $y=-13.086+0.289X_1+1.045X_2$, where y is the browning rate（%）, X_1 is drying temperature（℃）, X_2 is total drying time（h）, the value range of X_1 was 30～80, the value range of X_2 was 2～10. The concurrent and counter current dryer was applied in Nenjiang to optimize the drying process. The hot air temperature in each drying stage was reduced. When the hot air temperature of the 1st, 2nd, 3rd drying stage was reduced to 95℃,75℃,60℃