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Stopping Stubble Burning at the Root: Rethinking Rice Cultivation in Punjab

CHANDIGARH: Every winter, Delhi-NCR struggles with a devastating air pollution crisis, attributed to stubble burning across northern India. Stubble burning not only pollutes environment and increases temperature, but it also vaporizes soil moisture, kills beneficial micro-organisms and degrades soil health. The Supreme Court has once again emphasised that emergency measures like GRAP are not long-term solutions to combat this crisis. "It is widely accepted that the real problem lies in the compressed gap between paddy harvest and wheat sowing-pointing to a structural issue in our rice production system. Farmers today have barely 2-3 weeks to clear their fields and finish Rabi sowing. Without affordable or accessible options, burning becomes the only viable option for many." Said, Ravindra Agrawal, Chairman, KisanKraft Limited. KisanKraft, a DSIR recognized research centre, has developed new varieties of Rice, with focus on plant architecture, and has proved that this can be solved by changing rice cultivation from Transplanted Puddled Rice (TPR) to Dry Direct Seeded



Rice (DDSR) method, through trials across 10 states. One of the trial programs was in partnership with World Bank's Low Methane Rice project in Uttar Pradesh. However, farmers must use new varieties specifically developed for DDSR conditions, rather than sowing TPR varieties in DDSR. Varieties developed specifically for DDSR do not require standing water at any stage of crop growth. Unlike TPR, which depends on continuous flooding and heavy labour, DDSR

eliminates puddling, nursery, transplantation, reduces water use dramatically, improves soil aeration, and allows the crop to be sown and mature earlier. Early sowing and harvesting give farmers precious additional 15 to 20 more days-during which natural microbial decomposition of rice stubbles and field preparation can occur without pressure. Importantly, the aerobic soil conditions in DDSR help restore microbial activity, strengthen soil health, recharge groundwater, and create an environment where stubble decomposes faster and burning becomes unnecessary. Reduction in drawing deep groundwater, leads to reduction of heavy metal accumulation in grains. However, seeds alone cannot solve the problem. Particularly the small & marginal farmers in India need machinery suited to their scale and realities. KisanKraft's experience shows that compact, lightweight, low-cost machines-such as small stubble shavers, self-propelled inter-cultivators and small harvesters-offer practical solutions.