Investigating farmers' choice of pearl millet varieties in India to inform targeted biofotification interventions

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Biofortification is the process of breeding new food crops with higher micronutrient content. Biofortification could prove to be an essential strategy for combating micronutrient malnutrition in India, which has one of the world's highest overall rates of malnutrition. Currently scientists are developing biofortified varieties of one of the key staples consumed by the poor in India, namely pearl millet. Adoption and consumption of biofortified varieties of this crop is expected to increase the levels of essential micronutrients available to the poor in India through their daily diet. The aim of this study is to investigate factors that affect farmers' choice of pearl millet varieties; farmers' sources of pearl millet seeds and farmers' sources of information about new seeds and new technologies. Information on these issues is expected to inform the design of efficient, effective and targeted interventions to ensure the maximum adoption of the biofortified varieties. To this end we collected data from various key stakeholders in the pearl millet supply chain, including farmers, traders, seed suppliers, seed companies and public extension officers in two states of India, namely Maharashtra and Rajasthan. We used various innovative methods to collect these data: 4213 farmers were surveyed through computer assisted personal interviews, with the use of the Personal Digital Assistants (PDAs), which are handheld computers. The software developed for data collection and transfer was able to identify answers that were likely entered incorrectly or invalid answers given by farmers, thereby reducing the potential for errors. Data from 932 seed suppliers were collected through a telephonic survey. These data were entered on a web-based software in real time. Data from 10 seed companies were collected through a web-based survey and finally the data from around 100 extension officers were collected through pen and paper interviews. Our preliminary results reveal that there are significant differences across the two states in terms of the type of pearl millet varieties grown in; the role of seed suppliers vs. extension officers in the diffusion of seeds and in terms of farmers' sources of information regarding new technologies. Farmers in Maharashtra are more likely to grow improved varieties, seeds of which they purchase from seed suppliers and they are more likely to obtain their information about new seeds and technologies from the private sector agents such as agri-input suppliers and agri-exhibitions. On the other end of the spectrum, farmers in Rajasthan are significantly more likely to produce their own local seeds and rely on the public sector, such as agricultural extension officers and agricultural information centres for information about new seeds and technologies. These findings are expected to aid the biofortified pearl millet breeders and policymakers design targeted interventions to maximize the adoption of biofortified varieties of pearl millet in India.