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Acceptability of zinc biofortified wheat and flour among farmers in Pakistan: experiences from the BiZiFED2 project

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In Pakistan, 24.3% of women of reproductive age and 19.5% of children aged under five living in rural areas are zinc deficient[(1)]. Zinc-biofortified wheat flour may be an effective approach to address zinc deficiency in i communities where access to zinc-rich foods is low[(2)]. Key to successful scaling up of biofortified wheat and flour is its acceptability and adoption among its potential consumers and producers[(3)]. A convergent mixed methods study[(4)] was conducted parallel to the BiZiFED2 cluster- randomised controlled trial[(5)] in the Peshawar region between November 2020- July 2021. Two semi- structured focus group discussions (FGDs) were conducted with farmers who grew Zincol-2016 wheat for the RCT[(5)]. FGDs were audio-recorded, transcribed, and translated into English. Transcripts were analysed using thematic analysis[(6)]. In addition, a total of 686 farmers located in Pakistan's main wheat growing region, Punjab province, were invited to participate in a survey. These farmers were growing Zincol-2016 as part of a soil-mapping exercise within the broader BIZIFED programme. The survey was designed to capture the farmer's experiences of growing Zincol-2016 in the growing season 2019–2020 and whether they continued to grow it during the subsequent season.418 farmers participated in the survey (61% participation rate), and 12 in the FGDs. Survey data showed that 47% of participants reported growing Zincol-2016 in the subsequent season. Drivers of Zincol-2016 cultivation that were most frequently described as important were: availability of new seed (100%), grain yield (98%), growth and disease resistance (97%), quality of flour from the previous harvest (96.6%), and nutritional benefit (94.5%). Fewer farmers reported cost of the seed (71%) and market demand (57%) as important. A high proportion of farmers reported consuming Zincol-2016 within their own household (79%), and those who consumed Zincol-2016 flour claimed that it had better taste (90%) and texture (79%) than their usual flour. Qualitative analysis of the FGD data revealed that enablers for scaling up include: the value ascribed to the flour's health benefits, perceived improved quality of grain and production, and willingness to produce biofortified wheat if support is provided (i.e., resources and training). Challenges and considerations for scaling up include unfamiliarity with the biofortification process, production costs, external threats to the supply chain and production of wheat (i.e., COVID-19, weather, plant disease), and acceptance and support from the landlord.

Results from this mixed-methods study suggest that farmers appeared to value biofortified wheat and flour and may be willing to produce and consume it if resources and training were provided.

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