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(57) Abstract :  
HEALTH MANAGEMENT IN SMALLHOLDER AGRICULTURE [039] The present invention provides an integrated, field-deployable system for sustainable crop health management, specifically designed for smallholder agriculture. The system comprises three key components: a portable DNA barcoding kit for rapid identification of soil and plant-associated microorganisms; a microbial decision support system (MDSS) that analyzes diagnostic data and recommends crop-specific microbial treatments; and an on-farm bioformulation kit that enables localized preparation of beneficial microbial consortia. By accurately distinguishing between beneficial and pathogenic microbes, the invention empowers farmers to make informed decisions and produce tailored bioinoculants directly on their farms. This approach reduces reliance on synthetic agrochemicals, enhances soil and crop health, and supports environmentally friendly and cost-effective agricultural practices. Accompanied Drawing [FIGS. 1-2]

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