

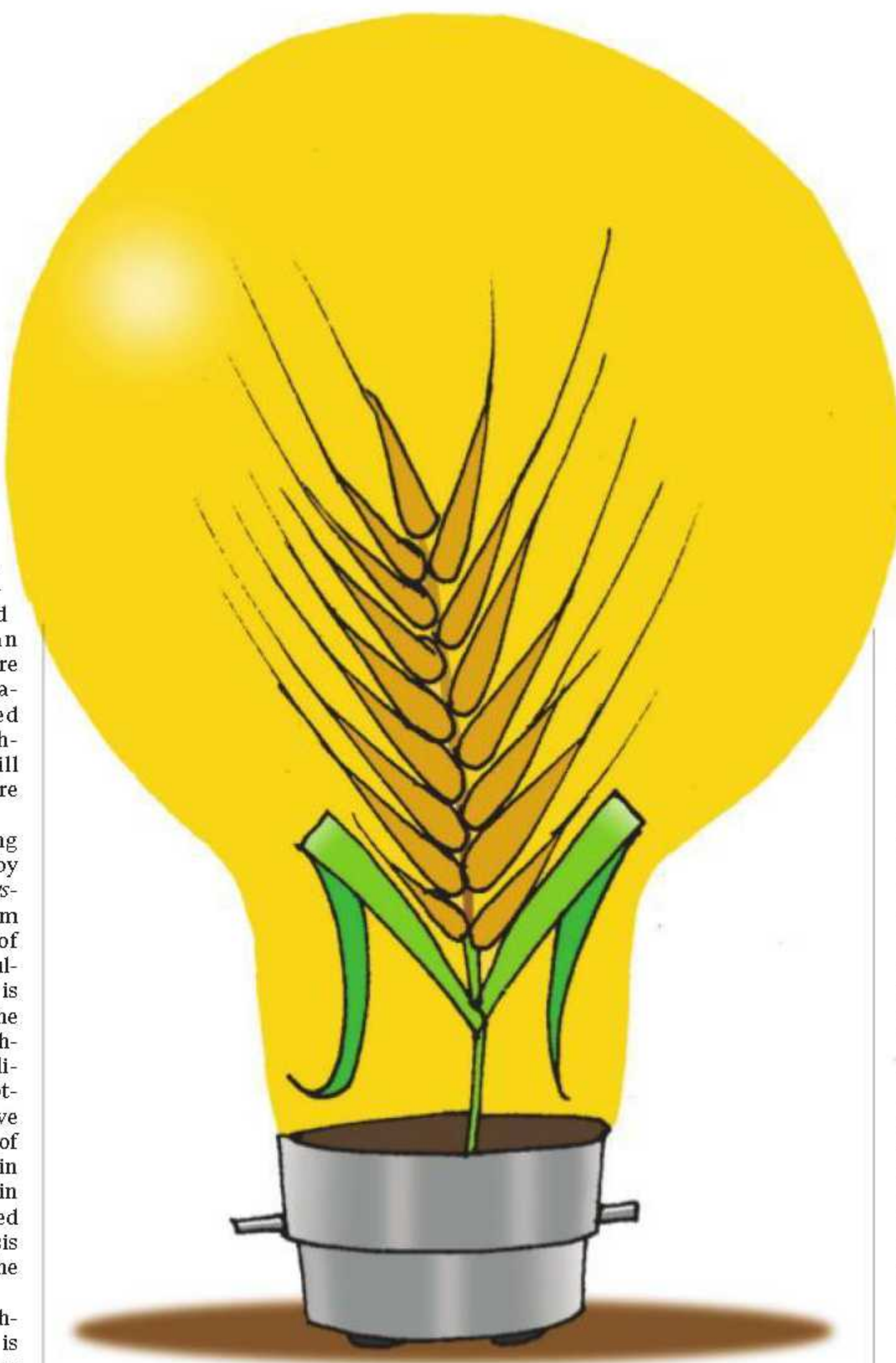
THE SHAPE OF INDIA'S high growth sectors has been predicated on an entrepreneurial mindset and innovative ideas. This has been a feature of the transition towards the growth of the information technology and telecommunications sectors in the 1990s and 2000s and is underway in the clean energy and fintech sector. Agriculture is the next frontier where the combination of escalating private sector-led entrepreneurship, transformative technology and favourable policies will ensure a paradigm shift for the entire value chain.

Amongst the many encouraging trends in the startup space identified by a report titled *India Tech Start Up Ecosystem* released in January 2021 by Nasscom and Zinnov, notable is the growth of groundbreaking startups in the agriculture sector. 'Serving the underserved' is an opportunity trend highlighted by the report, with agritech startups using technology drivers such as artificial intelligence (AI), machine learning (ML), robotics and satellite communication to serve farmers' needs. The scale and breadth of operations across the value chain spanned by over 735 agri tech startups in India, according to Tracxn, has facilitated unprecedented technological catalysis leapfrogging Indian agriculture into the future with efficiency and equity.

The interface of agriculture with technology steered entrepreneurship is increasing competitiveness, leveraging digitisation and relying on innovation to solve varied challenges in the sector. Entrepreneurs today are recognising the potential to accelerate production, ensure efficient input use, reduce post-harvest losses, intensify value addition, introduce risk mitigation and optimise ancillary activities. The realisation of these opportunities will bring escalating possibilities for farmers, raise investment in hard and soft infrastructure, advance efficiency in operation and enhance productivity. Most importantly, and consequently, there will be an acceleration of avenues for income generation and wealth creation for our farmers, ensuring enhanced quality of life.

Fasal's AI and IoT platform delivers farm-specific, crop-specific and crop-stage specific actionable advisory for reducing the cost of operation and increasing quality and yield. Its operations on 20,000 acres of land across states have led to the saving of up to 3 billion litres of water from irrigation, reduced pesticide costs by 60% and increased yield by up to 40%. Tartan Sense, operating on the theme of "small robot for small farms" utilises semi-autonomous rovers named 'BrijBot' to capture farm images. These are analysed with the help of AI algorithms to identify weeds, following which an on-board computer sprays chemical only on the detected weeds. Weeding costs on cotton fields have reduced by 70% due to these rovers. Wingreens Farms has shifted the processing stage to the farms itself. They have developed packages for over 100 crops while simultaneously educating farmers on moving away from water-hungry crops to lucrative and water-efficient crops. Their practices have led to savings of 2.5 lakh litres of water per acre per annum and increased some farmer's income by around 1000%.

For bringing efficiency in the agriculture market place, MyCrop has developed an 'agriculture platform as a service' approach which provisions for the utili-



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● SOWING FUTURE GROWTH

Advantage agritech for farm sector transformation

The technological milieu, policy environment and evolving entrepreneurship present an opportunity for a productive shift in Indian agriculture, a shift that incorporates indigenous farmer knowledge, optimises the value chain leveraging technological efficiencies and also ensures equitable access to markets for each and every farmer

sation of algorithms and big data to facilitate informed access to markets for farmers. A 'farmer mitra' delivers analytical insights and expertise to farmers for increasing profitability by reducing the cost of cultivation, increasing yield and finding suitable marketplaces. Aibono brings forth an AI-powered aggregator of fresh produce. Its 'seed to plate platform' connects stakeholders from the growing stage to consumption. It provides insights derived from AI on what and how to produce while enabling retailers and consumers to source farm produce from a traceable aggregated source. Agricix has developed an AI-enabled software-as-a-service stack for entities across producing, trading, storing, transporting, processing or financing of agricultural commodities. Their services provide an opportunity to digitise the entire procurement process. Further, the portable spectrometer and hyperspectral device ensures lab equivalent results in a matter of seconds making destructive testing redundant.

There are firms which are also offering end to end services across the agriculture value chain. For instance, Way-Cool takes a 'tech-enabled end-to-end supply chain approach' utilising robotic process automation, AI and ML. Their operation has spread across product sourcing, food processing, branding and marketing, last-mile distribution, and farm inputs. They positively impact the lives of 5 lakh farmers while delivering quantities up to 350 tonnes a day, servicing 16,500 customers across India. Sourcing fruits and vegetables from small and medium farmers, they facilitate access to buyer clientele such as Taj Group of Hotels, Elior, and Sodexo for maximum revenue realisation. Cropin services are being utilised by 1.6 million farmers for risk mitigation via live tracking of farms and interpretation of market trends for sale revenue maximisation. It utilises satellite imagery to create 'crop signatures' to assess crop damage, productivity and farmers' credit-worthiness. Furthermore, its smart farm platform supports farmers in terms of loans, insurance, crop and seeds. They are digitising farms while data-managing the entire ecosystem.

Finally, to ensure standardisation and quality optimisation AgNext has been using AI, data analytics, internet-of-things and spectral analytics for analysing food quality to ensure effective trade, production, warehousing and consumption. Milk Mantra is working on innovative packaging formats and dairy products. They have introduced a network of Bulk Milk Coolers in villages of Odisha with more than 35,000 dairy farmers benefiting from their services. They facilitate optimum price realisation, extension services and also quality standardisation. Finally, Intello Labs have built services for grading and quality monitoring of agricultural commodities bringing transparency and standardisation to quality assessment while reducing value risk and wastage.

Today, the technological milieu, policy environment and evolving entrepreneurship bring an opportunity for a productive shift in Indian agriculture. A shift that incorporates indigenous farmer knowledge, optimises the value chain leveraging technological efficiencies and also ensures equitable access to markets for each and every farmer. Agriculture in India needs innovation, and entrepreneurship is the best way forward. The potential is mind-boggling.