

ABSTRACT

Agricultural innovations and entrepreneurship development are critical for improving rural Indians' living standards. There is a need to assess the impact of available agri-entrepreneurial innovations as well as the status of the country's support system for agri-entrepreneurship development. Taking into account this backdrop, the current study was carried out to analyze agri-entrepreneurial innovations and their impact on farmers' livelihood security in selected states of trans, upper and middle regions of India's Indo-Gangetic Plains.

A proportionate random sample of 65 agri-entrepreneurs (around 10% of total agri-entrepreneurs from each of the selected states) was drawn from the sample frame of 647 agri-entrepreneurs comprising four major states i.e., Punjab, Haryana, Uttar Pradesh, and Bihar. Similarly, a proportional random sample of 65 farmers of the same area was drawn. Also, from each of the four states, 15 officials were selected randomly from various government and non-government organizations. In addition to this, eight Padma Shri awardees and five national-level awardee agri-entrepreneurs were purposively chosen for documenting their case studies in detail. This makes the total sample size 203.

Research analyzed and compared the conventional cropping system (Rice-Wheat) prevailing in the study area with the agri-entrepreneurial interventions of the selected sample of agri-entrepreneurs. The overall benefit-cost ratio for the traditional rice-wheat cropping system was 1.37, in comparison to the benefit-cost ratio of the selected agri-entrepreneurial innovations (ranged between 2.08 to 3.0), indicating substantially higher profitability of the agri-entrepreneurial innovations over the traditional rice-wheat cropping system. The Innovation Profitability Index (IPI) was used to assess the profitability of agri-entrepreneurial innovations and was found that 90.76% of the agri-enterprises were with medium profitability (IPI=0.62-0.97). The correlation of IPI with the determinants revealed that social participation ($r = 0.296$, $p = 0.017$) and mass media exposure ($r = 0.997$, $p = 0.000$) were positively correlated with the extent of profitability, whereas the gestation period ($r = -0.777$, $p = 0.000$) and capital investment ($r = -0.318$, $p = 0.010$) were negatively correlated.

Agri-entrepreneurs and farmers had average Livelihood Index (LI) scores of 0.651 (S.D.=0.022) and 0.419 (S.D.=0.021), respectively. According to LI values, 58.46% of agri-entrepreneurs fall into the medium category (0.293-0.698), while 41.53% fall into the high category (>0.698). A comparison of changes in agri-entrepreneurs' livelihood indicators before and after the adoption of agricultural innovations using paired 't' test revealed a significant difference in income ($t = 10.84$), employment days created for family ($t = 11.06$) and

employment days created for others ($t = 3.63$), expenditure on education ($t = 3.67$), food ($t = 6.33$) vehicle ($t = 3.31$) and gadgets ($t = 6.35$). Similarly, the two-sample t-test revealed a significant difference in income, employment days created for family, health expenditure, education expenditure, expenditure on food, vehicle, and machinery between agri-entrepreneurs and farmers.

The study further dwelled upon the major sources of support for development of agri-entrepreneurial activities. The most common support systems recognized by the agri-entrepreneurs included Central /SAUs/KVKs (90.77 per cent respondents). Although a variety of support systems were available to agri-entrepreneurs, 89.23% of respondents indicated that financial and capacity-building support were the most often used support systems by them. The analysis of functional linkage revealed that KVKs had a strong (Mean score > 4.7) functional connection with the research institutions, and agri-entrepreneurs.

Technical, financial, infrastructural, extension, and socio-psychological barriers faced by farmers and agri-entrepreneurs were evaluated using a 5-point Likert scale. Lack of published literature and technical guidance (Mean score = 2.20), high fluctuation in prices (Mean score = 3.47), irregular supply of electricity (Mean score = 2.69), requirement of more expertise in adoption of innovations (Mean score = 2.69) and risky nature of the job (Mean score = 3.65) were the most severe constraints identified by agri-entrepreneurs, under technical, financial, infrastructural, extension, and socio-psychological dimensions respectively.

Further, suggestions from agri-entrepreneurs and officials were also sought in respect of documentation, validation, commercialization and dissemination of agri-entrepreneurial innovations which may be helpful in further strengthening, expanding and upscaling of innovations. Data analysis revealed that the majority of respondents (57.6%) suggested that national campaigns and exhibitions can be utilized to track innovation. In case of validation, majority of respondents (41.6 %) suggested establishing testing facilities and (40.8%) opined that training in assessing the uniqueness of the innovation is necessary. Similarly, when it came to commercialization, the majority of respondents (56.85%) advocated financial support to innovators. The most preferred suggestive strategy for the dissemination of agri-entrepreneurial innovations was through recognizing/awarding innovators (56.0%).

Finally, based on the suggestions of the respondents, researcher framed the policy recommendations and suggested future scope of the study.