

Entrepreneurship Development Programme for Establishment of Soy Food Enterprises at ICAR – CIAE, Bhopal



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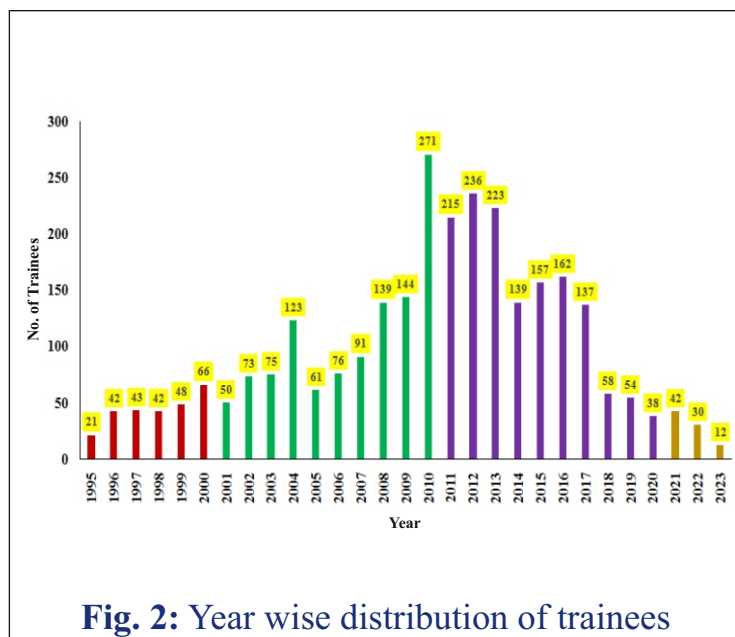
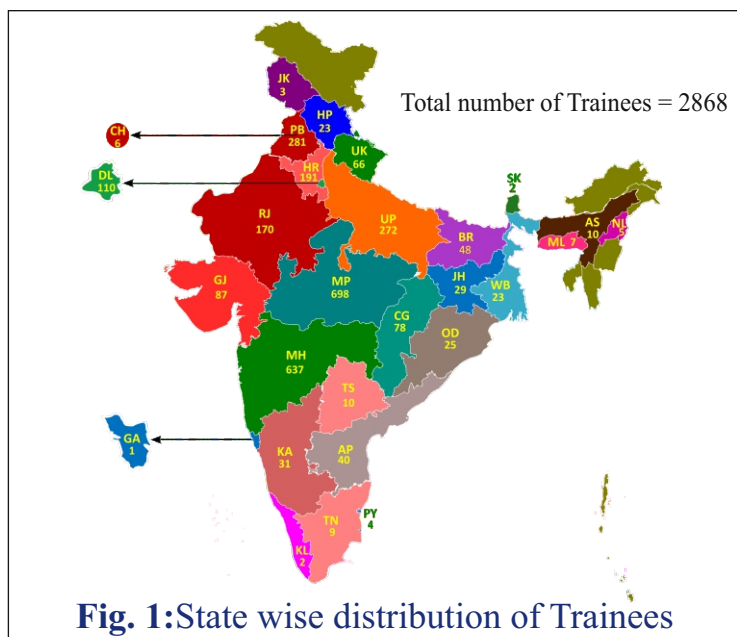


Preamble

Soybean, a nutritional powerhouse, boasts numerous health benefits, making it a significant food commodity. With its high protein content, low fat and carbohydrate levels, and zero cholesterol, soybean is considered a best source for plant-based protein. It is an excellent choice for people of all ages, including babies, children, the elderly, pregnant and lactating women. Its easily digestible vegetable protein provides essential nutrients. The potential of soybean and its products for diverse applications is immense due to its cost-effective and high-quality protein source. Beyond its nutritional value, soybean offers health-promoting properties, such as anti-oxidants, anti-obesity, anti-diabetic properties, and preventive effects against osteoporosis, breast cancer, and prostate cancer. Soy-based foods, including soymilk, tofu, soy curd, soy nuts, and various bakery products, have garnered significant interest, as they have been linked to reducing the risk of chronic ailments like cardiovascular disease and cancer. Moreover, these soy products come at an affordable cost, making them valuable in the fight against malnutrition when incorporated into daily diets. This success story of establishing Soybean Processing Enterprises through the Entrepreneurship Development Programme at ICAR – CIAE, Bhopal, reflects the transformative power of soybean, not just in terms of culinary innovation but also in enhancing overall well-being and nutritional standards. This journey showcases the immense potential of soybean processing as a catalyst for positive change in India.

Entrepreneurship Development Programme on Soybean Processing

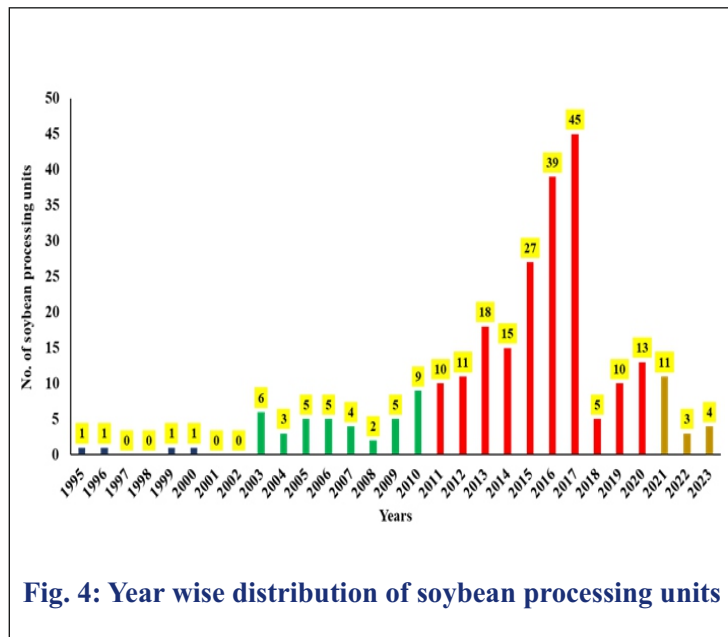
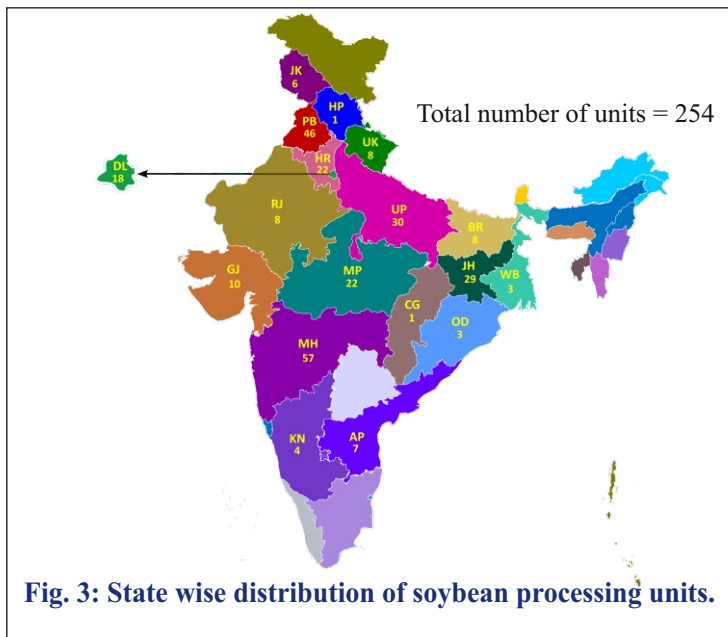
In 1995, a pioneering Entrepreneurship Development Programme (EDP) on soybean processing was initiated at ICAR - Central Institute of Agricultural Engineering (CIAE), Bhopal. This program aimed to develop thriving enterprises in soybean processing, driven by the objectives of creating livelihood opportunities, generating employment, and producing high-quality protein products at an affordable cost. Distinguished as the exclusive Institute in India offering such an EDP on Soybean Processing, ICAR-CIAE assumed a central role in empowering aspiring entrepreneurs with the necessary technical expertise and support. Participants received invaluable guidance throughout the establishment of their enterprises and were equipped with the skills to prepare processed soybean products. From its inception until July 2023, the EDP witnessed an impressive accomplishment, with 200 batches successfully concluded with 2,868 participants (Fig. 1). This program garnered enthusiastic engagement from individuals across the nation. Notably, the state of Madhya Pradesh had the highest number of trainees, followed by Maharashtra, Punjab, Uttar Pradesh, Haryana, Rajasthan, and Delhi. The year-wise distribution of trainees is shown in Fig. 2.



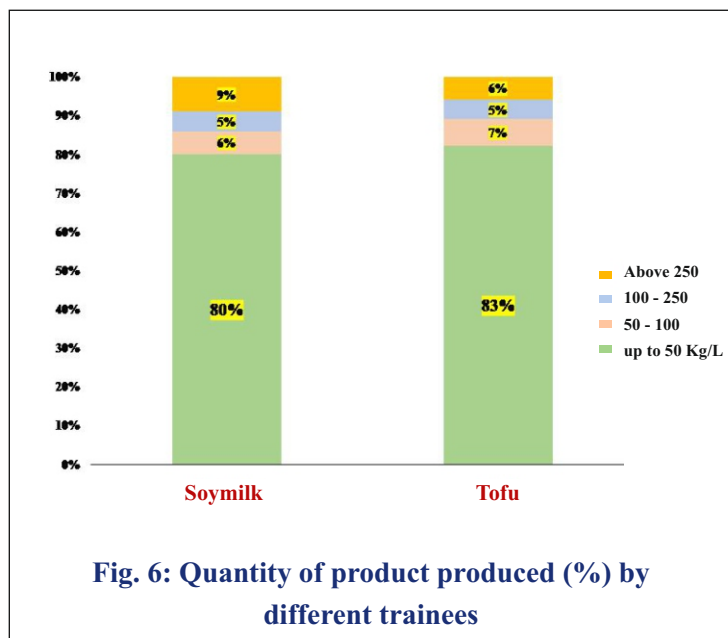
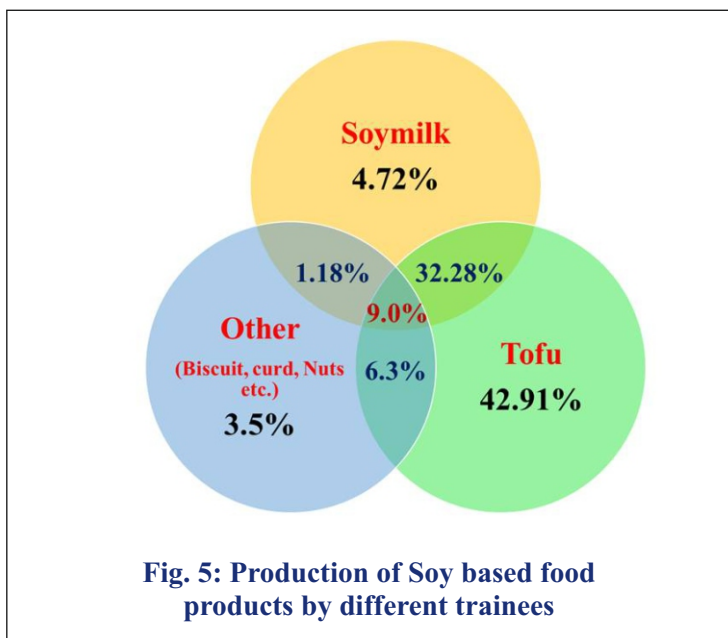
Assessing the Impact of Soybean EDP: Growth of Soy Processing Units and Product Distribution

An assessment of impact of the entrepreneurship training programme was carried out that included initially telephonic contact with the trainees and then personal visits of selected production clusters (Madhya Pradesh, Maharashtra, Punjab, Uttar Pradesh, Delhi, Haryana, Uttarakhand, Gujarat, Rajasthan, Bihar and West Bengal) across the country. It was observed that 254 soybean processing units are currently operational. The units are distributed in different parts of

country and includes 17 states, however, maximum 57 units are located in Maharashtra and followed by Punjab (46 unit), Uttar Pradesh (30 units), Haryana (22 units), Madhya Pradesh (22 units), and Delhi (18 unit) (Fig. 3). The establishment of units geared up mostly after 2010 (Fig.4). Out of total working unit, only 34 were established before 2010. More than 220 units have been established after 2010. Production details of different soy based food products are depicted in Fig 5.



Around 80% trainees are producing around 50 litres of soymilk or 50 kg tofu per day (Fig.6) Most of the trainees producing products more than 250 kg are located in Punjab and Maharashtra. Survey indicated around 15% of trainees manufacture soymilk or tofu on demand especially in marriage season. Annual production of different soy products manufactured by trainees is presented in Fig.7.



From the available data, it is evident that the mean yearly output for Tofu and soymilk stands at 3181 metric tons and 3457 kiloliters respectively. Additionally, other soybean products contribute to a total of 376 metric tons. Percentage production of soymilk, tofu and other food products are depicted in the Fig. 7. There has been a noticeable uptick in the trend of trainees effectively setting up soybean-processing units (Fig. 8). Over the past decade, the average conversion ratio has hovered around 25%, which could indicate the significant accomplishment in reaching the intended goal of the entire EDP training program.

Distribution of Soy products - 7014 thousands kg/year

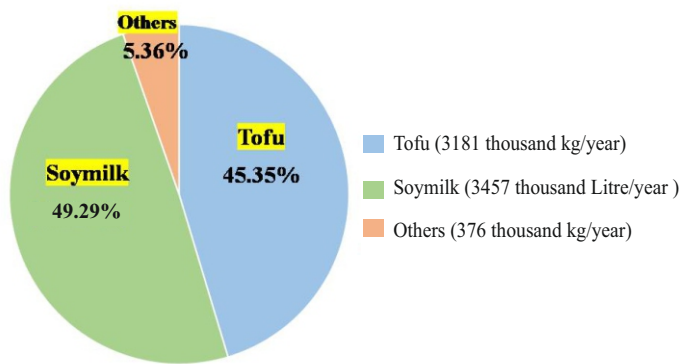


Fig. 7: Annual Production of soy products

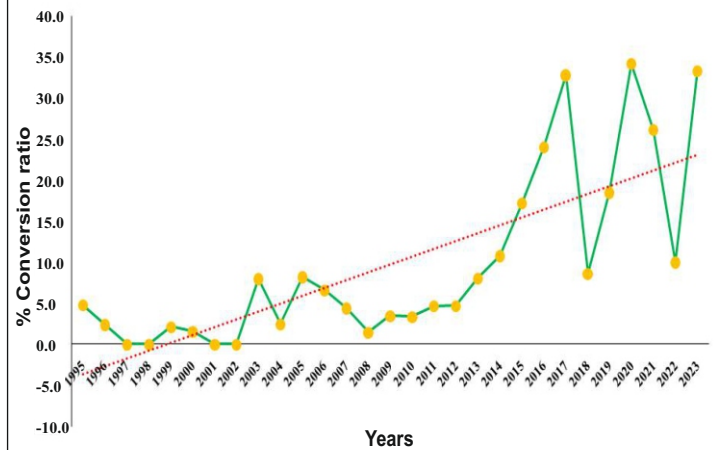


Fig. 8: Conversion of trainees into established soy-processing units

Economic impact

Soybean processing is undertaken by 254 entrepreneurs nationwide, yielding a diverse range of products, including milk, tofu, flours, nuts, curd, biscuits, Kabab, chap, and Halwa. These processing units operate for 197 days annually, employing an average of 4.1 workers per unit. This collective effort generates substantial employment, amounting to approximately 2.05 lakh man-days per year, thereby a monetary gain of 50.2 crores upon the 1037 workers operating the 254 soybean processing facilities. Each entrepreneur garners an average annual gross return of Rs 62.67 lakh, while the cumulative annual gross expenditure stands at Rs 37.15 lakh. Consequently, an annual net return of Rs 25.52 lakh per entrepreneur is realized, achieving a Benefit-Cost Ratio (BCR) of 1.7. Furthermore, these 254 soybean processing units established nationwide significantly contribute to employment generation, contributing over 2.05 lakh man-days per year. The holistic monetary advantage stemming from these entrepreneurs collectively amounts to approximately Rs 50.2 crores annually.

Conclusions

Since its inception in 1995, the soy food-focused entrepreneurship development training initiative led by ICAR-CIAE has played a pivotal role in establishing 254 enterprises. These ventures make a substantial contribution to the nation's economy and play a significant role in addressing malnutrition. Presently, these enterprises yield an economic impact of approximately Rs. 50.2 crores per year, which continues to rise in tandem with the growing popularity of soy-based food products. Operating predominantly at the cottage and small-scale levels, soy-based food processing industries have proven highly successful in generating income and employment opportunities. This underscores their vital role in fostering economic growth of the nation while positively impacting nutritional well-being of population.

For Further Information

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