

The workshop was inaugurated on 11th April at 9.30 a.m. The opening remarks were presented by Dr. P.S. Ahuja, Director IHBT Palampur. He explained the history of Kangra Tea and illustrated the contributions of the Institute in reviving and promoting tea plantation in the region. He highlighted the National Tea Network Programme coordinated by IHBT on germplasm characterization of tea clones. The fundamental work on metabolic engineering, and deciphering the catechin biosynthetic pathway, and caffeine free tea were also highlighted. The role of IHBT in fixing MLR levels and seeking Geographical Indication for Kangra Tea were also mentioned. He explained the importance of tea in relation to climate change and carbon emission terming it an eco friendly crop. He described the problems faced by the planters of the region with changing times particularly as more and more plantations were moving into urban areas and tea becoming less and less remunerative. He also highlighted the expectations and importance of the workshop. After the address, a documentary on Kangra Tea was shown.

Ms. Roshini Sen, Dy. Chairman, Tea Board of India explained in detail the policies of the Tea Board and different schemes to promote tea production of the country. She highlighted the importance of formation of self-help groups and opportunities that could be availed from Tea Board once such groups are formed. She also informed that the Tea Board trains 2 members of Self-help group as “trainers” for 6 months at its own cost. Further, she mentioned that Tea Board is encouraging organic farming and providing 75% subsidy towards certification cost from agencies accredited by Tea Board. She felt that Kangra Tea has tremendous potential as organic tea and initiatives were required from the planters. She highlighted the research focus of XIth Plan mentioning that thrust have been laid on: technology advancement and tea engineering; better manufacturing process; and small size integrated tea processing machine. She mentioned about the collaboration between Tea Board and IIT’s and ISRO for mapping of tea gardens in the country. She appreciated the diversified tea products developed by IHBT.

Dr. PC Kapoor, Principal Secretary, Agriculture and Horticulture, Govt. of Himachal Pradesh mentioned that H.P. Govt. has a positive outlook towards tea industry of the State and have supportive policies in place to promote tea production. He mentioned that Kangra is traditionally a tea growing State with a rich heritage and now the planters of the region should take fresh initiatives to come together to revive the declining status of tea in the region. He mentioned that the State Govt. is promoting organic farming and planters should take advantage from it. Also, he informed that Government of India is striving to improve the productivity in agriculture and allied sector for value addition. He informed that Horticulture Mission is a great success in Bilaspur area. He explained that major challenges are: to go for agriculture diversifications and to develop a vision plan for tea industry in Kangra.

Dr. Pawan Kapur, Director CSIO highlighted the quality aspect which was critical during tea processing. He delved upon the evolution of tea processing starting from artisans to industry. He informed the house about the new generation machines and contribution of CSIR particularly CEERI for automating the process of tea withering for bringing consistency in quality. He also enlightened on the cost effective quality

enriched concept and environmentally controlled manufacturing unit which can be scaled up as per the acreage and different process of manufacturing like withering, rolling, etc. He mentioned that world is now moving from quantity to quality and with advancement in instrumentation, different parameters of quality can be characterized. He felt that Kangra tea has great potential based on quality parameters and can capture niche market with better processing plants.

Dr. H.R. Bhojwani, Sr. Advisor to Minister of S&T and to Vice President CSIR highlighted the genesis of Technology Innovation and Management Centre at IHBT Palampur. He mentioned that Tea industry in Assam and South India were well developed but tea industry of Kangra and Uttarakhand are small hence science and technology intervention were required for their upliftment. He highlighted that Kangra has unique problems like small land holdings, labour shortage, inadequate remuneration etc hence needs specific solutions are required. He suggested that to tackle labour problems contract plucking could be explored. Also, young educated youths could be trained for mechanization of farm operations. To empower the planters in tea processing for marketing their own produce, small manufacturing units could be fabricated which could be scaled based on their tea leaf production. He emphasized that formation of policy is imperative to improve the status of the Kangra tea and creation of a vision document is essential.

Dr. S.N. Sharma, consultant HRDC Gaziabad proposed the vote of thanks. He highlighted the objectives of the Technology Innovation Management and thanked DSIR for financial support for organization of the workshop.

The first technical session focused on the field aspects of the tea plantation including nursery, husbandry, plantation management and mechanization of farm operations. The session was chaired by Dr. P.C. Kapoor, IAS. It was realized in the session that majority (about 80%) of tea planters of Himachal Pradesh are small tea planters, hence characterization of planters be made accordingly which may not follow the set pattern. It was also felt that Tea Board/ Govt. policies should be framed keeping in view the need of the small farmers of H.P. and Uttarakhand to boost tea production from the region.

The session was organized in discussion mode and several planters expressed their views, problems and concerns with respect to tea husbandry. It emerged that Kangra tea is facing a slump in the market and planters were not getting good returns. It was adequately reflected that due to several Govt. policies tea planters are finding it difficult to maintain tea gardens and often the cost of maintaining gardens exceeded the returns. Due to sustained losses over the years small planters have subsequently lost interest in tea. The major problems identified were:

1. **Lack of quality planting material:** The growers expressed that they do not get good quality planting material for infilling/inter planting and replanting. Also, most often they are not knowledgeable about the performance of the crop and nursery plants they are planting and do not have any idea about the suitability of the plants in terms of productivity and quality. The experts felt that Tea Board, IHBT and University should work together (in unison) to assess and recommend

suitable clone and seed planting stocks for the region. Also, it was advised that Tea Board should convene meetings for nursery preparedness.

2. **Labour problem:** The planters mentioned that non availability of labour during plucking period adversely effected the productivity and quality of their gardens. Also, most of the workers were not knowledgeable in plucking operation which brought down the tea quality. It was mentioned that the Govt. Scheme on Savarojgar Guarantee Scheme also effected the tea production. One of the members proposed that formation of a labour bank capable of catering the needs of the tea planters could solve this long term problem to a large extent and improve quality tea production.
3. **Lack of knowledge about right practices:** Several planters expressed that they did not have any formal channel of knowing the latest development in field management practices. Due to lack of knowledge they either perform wrong operations or fail to maintain the garden in the right way which leads to great losses. The experts felt that the advisory services by IHBT and State Govt. need to be extended and Tea Board could organize camps in selected areas for latest knowledge dissemination.
4. **Mechanization:** It emerged that the majority of the planters of the region were undertaking hand plucking. The planters practicing mechanization highlighted the upkeep problems of maintenance and repair of machine in the region. It was expressed that the machines were highly effective for skiffing. Further, shortage of skilled labour capable of handling machine operations was also brought forward. Hence, it was felt that creation of a centralized unit for tea mechanization and training educated unemployed youth in farm mechanization operations could help in improving the status of the gardens and could simultaneously tackle the labour problem.
5. **Shade management:** Ideal shade management was very critical in tea gardens with respect to quality shoot production and pest management. Several planters mentioned that Govt. policy i.e ban of lopping adversely effected the shade management of tea plantations and desired that Govt. took a different view to lopping for tea plantation management.
6. **Lack of professional attitude:** Some experts felt that there was general lack of professional attitude among tea planters and emphasized on capacity building.

During discussions it also emerged that though tea plantations in the Kangra region were more than 100 years old and there is need of replanting but planters were not interested in new plantation and rejuvenation.

The second technical session focused on the management problems and need of tea processing. The session was chaired by Dr. Pawan Kapur, Director CSIO.

The planters as well as the members agreed that Kangra tea was unique in its quality and it could compete in international market based only on its special flavor and not quantity as total tea growing area of the region was very small. It was felt that for

getting a premium price in international tea market, a road map be developed for Kangra tea marketing. The views shared by the planters reflected that there was lack of manpower knowledgeable in tea processing. It was suggested that to overcome the losses suffered by the tea planters, a long term and a short term plan be made. It was felt that identification of critical issues and filling up of gaps were essential. During the discussions, it was realized that tea gardens were often not properly managed for yielding good quality tea and constant advisory support in tea plantation management and tea processing was the need of the hour. Further, it emerged that quality of tea made from first flush was good and provided good returns to the planters but during rains the quantum of flush could not be managed due to fast shoot growth, the problem further aggravates due to labour shortage and limited processing capacity of tea factories of the region. The planters expressed that they do not get good returns from tea factories and at times the factories rejected their leaves based on plucking quality. Also, it was discussed that labour employed for plucking were concerned with the quantity of the pluck and did not understand the implication of good quality pluck which ultimately lowers the plucking grade. Many growers complained the grading procedure adopted by the tea factories. The experts felt that an imaging aided grading machine be developed which could give the score of the plucking and payment can be made to the planters based on the plucking quality. Further, it was proposed that to improve the overall quality of made tea, withering process has to be handled technologically. Dr. Pawan Kapur highlighted the salient features of a tea processing machine developed by CSIO and informed that required modifications could be done in the machine to cater to the need of tea planters of the Kangra region. The planters felt that small processing machine capable of making orthodox tea could be beneficial for the region as it would give leverage to the planters to process leaves from their own gardens. It was felt that R&D interventions are required for up gradation of quality of rain flush which constitutes 50% of the total production. Also, the experts felt that for right pricing of Kangra tea it was important to develop a machine that could assess the biochemical parameters of tea like e-nose etc. to maintain the quality standard.

The third technical session focused on the prospects of tea diversification, organic farming and marketing of tea. The session was chaired by Dr. R.M. Bhagat of TRA. Dr. Ashu Gulati made a formal presentation on prospects of tea diversification. She highlighted the data generated by the Institute in terms of tea quality parameters. She explained the chemical profile unique to Kangra tea which helped in seeking Geographical indication. Further, she highlighted the tea diversified products developed by the Institute. The experts and the planters felt that Kangra tea could fetch a better price if grown organically. It was realized that as a general practice the load of chemical pesticides and fertilizers was not very heavy and it was easier for the region to become organic. Dr. P.S. Ahuja explained in detail, how to move from inorganic to organic in a phase wise manner. He emphasized that 'organic' is a system and Kangra has to develop its own but internationally accepted standards. Also, he mentioned that there were progressive NGOs who could help in getting organic certification. The members also explained that processing of the organic tea needed to be carried out separately. Ms. Roshni Sen informed that Tea Board would soon set up MRL testing lab in its offices.

The fourth technical session focused on strengthening of tea industry. The session was chaired by Dr. V.G. Dhanakumar of IIPM. Sh. M. Das Gupta from ITA made an impressive presentation as on rightful use the GI status to protect its market share and fetch premium price. It was interesting to learn that Darjeeling Tea Association has authorized Tea Board to administer the GI. He explained the difference between sale and marketing. He highlighted the changing trends of consumer with rise in income and opportunities. He also discussed the challenges faced by the producers and suggested key strategies for better marketing of tea. Dr. V. Dhanakumar focused on the techno--human dimension of tea management. He explained in detail the institutionalization of STGs and the three tier concept of Institution building process. He also illustrated how tea parks could be formed and function to boost the tea production from the region.

It was felt that a study could be undertaken by the State Govt. /Tea Board to understand the best way to market the Kangra tea. Ms. Roshni Sen advised that the body of the Kangra Tea Planters Association needs to be activated so that maximum benefit could be rendered by the Association. She explained that Tea Board could act as a facilitator but the supply chain management has to be done by the Association. Further in the session Dr. M.B. Tamang highlighted the status of Uttarakhand Tea Industry. He mentioned that CSIR Palampur initiated establishment of Uttarakhand Tea Industry (UTI). He informed that the region already has 504 ha under new tea plantation and Uttarakhand Tea Development Board (funded by Govt.) has been set up. Further, he mentioned that quality is the main focus of UTI and presently tea is sent to Kolkata for auction. Elaborating the problem of marketing he mentioned that N-W teas finds difficulty in finding a foothold in the Kolkata Auction Market, because these teas were categorized in a sale catalogue separately from Darjeeling. Though these regions make the same type of tea as Darjeeling, but these teas were not lucky enough to fetch the prices for flavor tea. Therefore, he suggested that a niche market for flavor tea of N-W be opened at Delhi with the help of Tea Board of India and APEDA, because a large numbers of foreigners come to Delhi for purchasing Indian products, especially herbal and organic products. Another problem he highlighted was that of gaining advantage of the first and second flushes of the tea market. N-W tea lose this market because the tea bushes start flushing late (after mid-March only); by the time the 1st invoice of 1st flush tea is sent, the Kolkata market is flooded with Darjeeling 1st Flush Tea. Also, 2nd Flush Tea from this region reaches the auction market towards the end of Darjeeling 2nd Flush again losing the advantage of procuring higher prices. This calls for the development of early-flushing flavor clones and Biclinal seedstocks. A joint effort can be made by Himachal and Uttarakhand in this respect. He felt that for tea research collaboration with IHBT is required for early flushing and quality assessment. He informed that e-auction is the need of hours and would be stated by end of December by Tea Board.

The session through discussion brought forth few key points like Institutilization of Small Tea Growers Association; Activating Kangra Small Tea Planters Association; and coming up with recommendations that could be passed on to the Govt.

In the concluding session which was chaired by Dr. P.S. Ahuja, the chairman of the respective sessions summarized the key points discussed in their sessions.

Following key points were again highlighted:

- Collaboration between IHBT and University with Tea Board in suggesting the planting material suitable for the region.
- Handling of labour problem by creation of labour banks
- Creation of a centralized facility with skilled manpower and machines for mechanization of appropriate farm operations.
- Extension of advisory services for rejuvenation and managements of existing tea plantation.
- Exploiting the uniqueness of Kangra tea for carving a niche area in international tea market.
- Designing image aided grading machine for assessing leaf quality.
- Educating the technicians about good quality processing.
- Designing and manufacturing of tea processing machine for controlled withering at desired scale of operation.
- Developing internationally accepted indigenous standards of organic farming for the region.
- Formation of group/ cluster/association/self help groups.
- Organizations of buyers meet at Kangra.
- Preparation of vision document for Kangra tea.
- Reactivation of Kangra Tea Planters Association.

The workshop was attended by 50 planters and experts. The Director IHBT thanked all the experts and planters for attending the workshop and for their valuable suggestions.