

GUEST EDITORIAL

Cold Arid Agro-Animal Technologies

Tsering Stobdan

DRDO-Defence Institute of High Altitude Research, Leh Ladakh - 194 101, India
E-mail: ts_mbb@yahoo.com

Ensuring the nutritional security of combatants guarding the extreme altitudes along the Himalayan frontiers remains a daunting task owing to the harsh cold desert climatic conditions, landlocked terrain and sparse vegetation. These cold arid regions are characterised by rugged topography, extreme temperature variations, low precipitation, high wind velocity, thin atmosphere with high UV-radiation and fragile ecosystem. The *Defence Life Science Journal* decides to bring out a special issue on the theme 'Cold Arid Agro-Animal Technologies' focusing on the significance of agro-animal technologies for nutritional security of the soldiers deployed in inhospitable environments as well as the local population who have been living and thriving in these harsh conditions of high altitude.

Defence Institute of High Altitude Research (DIHAR) in the Northern Himalayas, the Defence Institute of Bio-Energy Research (DIBER) in Central Himalayas and Defence Research Laboratory (DRL) in Eastern Himalayas have been spearheading the efforts made by the life sciences cluster of Defence Research and Development Organisation (DRDO) in ensuring nutritional security of the troops in strategic cold deserts. Over the years, these laboratories have emerged as a doyen of high altitude research and pioneered the development of agro-animal technologies for high altitude to ensure sustenance and enhancing the performance of troops guarding the northern frontiers.

In this special issue, research teams from DIHAR and DIBER along with collaborators from Indian Council of Agricultural Research (ICAR) summarise their recent and on-going efforts on developing cold arid agro-animal

technologies. This issue contains original research articles and reviews on a variety of basic and applied aspects of agro-animal technologies. The papers which have been selected for this edition cover a wide range of subjects ranging from technologies for augmenting fruit and vegetable production, sustainable utilisation of indigenous medicinal plants, phytochemical screening of native plant species, energy budget for growing crops, development of fast growing goat, endurance studies in the native Zanskar pony, and allelic variants of genes for A2 milk in the native Ladakhi cattle. On the whole, this special issue is a reflection of the efforts made by scientists in developing technologies that augment the performance of troops in inhospitable environments of high altitude and strengthening nutritional security in remote high Himalayan regions.

It has been both a great pleasure and an honour to serve as the Guest Editor of current special issue of *Defence Life Science Journal*. This issue gives me the opportunity to showcase the persistent efforts made by the fellow scientists in development of technologies for cold arid regions – a subject which is not being actively pursued by mainstream research institutions. The 15 papers which have been written for this issue are the ones that have made a strong and positive impact on the well being of soldiers as well as the common man dwelling at high altitude. It is especially heartening to see that the innovations brought out have a practical use and ready takers.

Finally, I would like to thank all the authors and the reviewers for their hard work and outstanding contributions. I am grateful to the Editor-in-Chief, the Editorial Board, and the Editorial Team of the *Defence Life Science Journal* for their support in bringing out this special issue.

Dr Tsering Stobdan obtained his PhD from Indian Agricultural Research Institute, New Delhi and current serving as Scientist 'E' and Head, Plant Science Division at DRDO-Defence Institute of High Altitude Research, Leh. His research fields are cold arid agro-technologies and sustainable development. He has more than 50 publications on the subject in peer reviewed journals, 5 patents and 2 monographs to his credit.