**PROCEEDINGS (ISSGPU Seminar 2017)**

ISSGPU National Seminar on “Improvement of Small Ruminant Production System for Livelihood Security” was held at ICAR-CSWRI, Avikanagar on March 9-10. The major theme of the seminar divided in to six different subjective groups namely, 1) Small Ruminant Genetic Resources, Production, Management, Improvement, Genomics, 2) Advances in Physiology, Adaptation & Reproduction to improve productivity of small ruminants, 3) Nutrition, feed resources and pasture development for small ruminants, 4) Recent development in health management of small ruminants, 5) Post-harvest Technology: Wool, Meat and Milk, and 6) Socio-economic Aspects in small ruminant production. A total of nearly 350 participants attended the seminar and took part in presentation, deliberation and discussion to come out with the following major recommendations:

* Prioritization and planning of research with interdisciplinary and interinstitutional approach involving end users for effective and objective outcome in a targeted time frame.
* High density chips available at present may be used in screening our organized indigenous flock/reference populations to study its effectiveness / suitability. If not there is need to draw a program to develop a chip for indigenous sheep and goats. In this endeavor, both CSWRI and CIRG to analyze and appropriately draw a way forward.
* There is a need for large scale application of first and second generation reproductive technologies such as estrus synchronization, artificial insemination and embryo transfer in small ruminants for upgradation and genetic improvement of low producing sheep and goats. The State Animal Husbandry Departments need to coordinate these activities vide desired technical input (short-term training, expert field demonstrations etc) from the Research Institutes
* Further research on the development of advanced reproductive technologies (third and fourth generation) such as in vitro production of embryos, semen and embryo sexing, cloning, transgenesis, stem cell biology and molecular diagnostics etc. need to be undertaken so that the elite animals (sheep and goat) can be exploited for faster multiplication
* The present ICAR Standard for nutrient requirements of small ruminants may be revisited keeping in view the grazing/browsing behavior of sheep and goats so that supplementation policy could be decided for realizing maximum nutrient utilization and production. A panel of experts from CSWRI, CIRG and relevant SAUs can look in to these aspects and recommend real-time supplementation and feeding plan to policy makers for its regional implementation.
* Small ruminants could be exploited to produce designer meat and milk by adopting different nutrient manipulation techniques, supplementing useful microbes and other technological interventions. Research Institutes need to focus upcoming investigation in this line. The approaches for nutritional strategies of small ruminants should also target the health and immunity enhancement which also address the production parameters of animals benefiting the human health.
* SAUs and Research Institutes in continuum expand the feed resource base involving alternate locally available feeds need to be exploited and detailed studies regarding its level in the diet, effect on production parameters and formulation of diet as a whole either as total mixed ration or in complete feed block.
* The genetic marker/markers may be explored for rapid identification and selection for disease resistant animals. The targeted diseases should be prioritized based on their economic importance, animal species and regional conditions. Input from research organizations like CSWRI, CIRG, NBAGR, IVRI, NIVEDI, etc. can be compiled and discussed for next line of action and its practical implementation.
* Emergence of anthelmintic resistance is a real threat for the control of parasites in small ruminants. Therefore, to regulate the use of anthelmintic Animal Husbandry Departments should formulate a policy for use, sale and monitoring of anthelmintic. Veterinarians must be trained for the control of anthelmintic resistance and focus on Targeted selective treatment in farms and field conditions.
* Paratubercullosis, a zoonotic disease of livestock causes huge economic losses under farm conditions. Its quick and rapid diagnosis is essentially required for the diagnosis. Therefore, CSWRI, CIRG in collaboration with IVRI and other research organizations may accelerate their investigation efforts in this direction.
* There is an urgent need for utilization of coarse wool for non-conventional uses (e.g. sound insulation properties, construction materials) and diversified value added woolen products.
* More thrust should be given on utilization of slaughter house waste in order to protect environmental pollution and loss of valuable byproducts. Further, value addition to meat should continue and processed products should be popularized.
* The small ruminants (sheep and goat) milk should be explored by institutes (CSWRI, CIRG, NDRI) and other organizations for its functional properties and its suitability for value addition, which can multiply the income from this small-ruminant livestock sector.
* Organized market link-up needs to be explored by State Animal Husbandry Departments to establish competitive bidding for better price and profit from the sale of live animals. In this direction, creation of Farmers’ Societies and linkage with NGOs, high-end cooperatives, commercial slaughter houses, meat and milk exporters, urban commercial Shopping Malls units (e.g. Big Bazar, Reliance, Vishal Megamart, etc.) besides state development machineries will enhance producer-marketing round-up for higher profit and future investment in this small ruminant livestock sector.
* Extension agencies need to focus on sound impact assessment study and socio-economic survey involving input: output analysis following up with CATA analysis so as to re-orient or re-organize transfer of technology process, if desired.