

A showcasing integrated livestock technologies for improved sheep production in Doyogena, Ethiopia

Feeds and nutrition, community based sheep breeding and reproduction technology were key themes on the agenda of the November 17, 2016 field day in Doyogena, South Nations, Nationalities and Peoples region (SNNPR) of Ethiopia that was hosted by SNNPR Agricultural Research Institute (SARI), Areka Center. Integration of the 3 livestock themes are ongoing to improve sheep production in Doyogena, Ancha Sedicho and Hewora *kebeles* where sheep farming is the mainstay of livestock production. The community based breeding programme (CBBP) was introduced to Doyogena farmers in 2013). Since then, 487 farmers are members of the CBBP. Improved feeding and nutrition strategies for ram fattening have been in place with over 150 CBBP members undertaking two fattening cycles during 2015 and 2016. More recently, reproduction technologies that include AI and estrus synchronization have been introduced to farmers. The projects are coordinated by ICARDA Scientists, Dr. Aynalem Haile, Dr. Jane Wamatu and Dr. Rekik Mourad in conjunction with Areka researchers led by Dr. Deribe Gemiyo, Addisu Jimma and Kifle Tawle.

The field day got under way with welcoming remarks from Tsegaye Bekele, Areka Center Director who noted that 2016 field day agenda reflected latest efforts of the research center in addressing livestock problems at grass root level with collaboration of various local and international organizations. He spelled out that crop, livestock and natural resource management are core mandate areas for research undertaken by Areka ARC. "This year's program is filled with vital information for all livestock producers," he reiterated.



Fig. 1: Welcoming speeches during the field

The field day witnessed an impressive turnout of over 200 farmers and was graced by Agricultural Bureau officers, SARI national researchers, development workers, extension workers, government administration officers. The day consisted of tours of research and demonstration plots, accompanied by lots of discussion between livestock officers and farmers. The morning session was an exemplary showcasing of integrated livestock technologies. Attendees visited farmers' fields who demonstrated differences in faba bean varieties for dual purpose, food-feed traits and differences in production of fodder oats and vetch varieties. Discussions included utilization of faba bean hay as livestock feed as it is a commonly grown food crop in the area. Deribe Gemiyo, explained that the aim of forage legume production is to boost the forage base for integration with sheep breed improvement. This session was an exemplary demonstration of multi-disciplinary efforts of animal nutritionists, crop breeders and agronomists from Areka ARC to achieve multi-dimensional crop improvement. Farmers and other attendees were particularly concerned about pure seed production and sustainable forage seed supply system. Areka ARC is currently undertaking varietal verification with farmers to facilitate identification of varietal options acceptable to farmers and for ultimate multiplication and distribution to scale. Farmers were encouraged to organize themselves into groups and/or cooperatives and start selling forage seeds to other localities. In an effort to improve forage legume seed supply and sustainable production, an MOU between Areka ARC and CBBP members to produce and multiply forage seed is underway. Currently, farmers are receiving training on utilization of forage legumes, use of alternative feed resources and sheep fattening strategies.



Fig 2: Vetch and oats varietal adaptation trials.

Prolificacy is a commonly observed phenomena within Doyogena sheep flock. However, compromised nutrition results in reproductive wastage (abortion, weak birth, still birth and pre-weaning stunt growth and mortality) and poor growth rates of lambs. In view of this, ICARDA has recently introduced reproductive technologies namely artificial insemination (AI) and estrus synchronization to shorten lambing interval, adjust times of lambing to periods of feed availability and reduce reproductive wastage. An additional benefit is the possibility to increase number of lambs with similar ages and sizes within batches so as to facilitate ram selection for genetic improvement and market opportunities for lambs of similar ages. AI technology for sheep, the first in Ethiopia, is being pioneered in two sheep breeding cooperatives in Ancha Sadicho and Hawora Arara in Doyogena. The increasing tendency towards market-oriented sheep farming by Doyogena farmers has raised desire by farmers to reap benefits from multiple births with consequent willingness to practice the integrated nutrition/breeding/reproductive technologies.



Fig 3: Farmers display ewes and lambs born through AI

Zonal Livestock and Fisheries Department heads in attendance expressed importance to scale out these reproductive technologies. Desta Gabirel, a delegate from the Regional Bureau of Livestock and Fishery promised to provide ultrasound machines that can be used for sheep pregnancy diagnosis for some zones of the region. This was in response to concerns raised by Dr. Amare (Head Livestock and Fishery office, Wolaita zone) who highlighted the difficulty of pregnancy diagnosis in livestock. Scanning identifies pregnant and non-pregnant females after completion of the mating season. It offers i) an opportunity for re-mating; ii) culling of non-fertile females; and iii) timely planning of conditions for birth.



Fig 4: Discussions held with farmers

In conclusion, general discussions between farmers, livestock officers were held and chaired by SARI Director General (DG), Dr Nigussie Dana (Fig 4). The main challenging raised was how to scale up the reproductive technologies in view of the shortage of trained personnel. This calls for concerted efforts by Ministry of Agriculture and research. So far core teams of national technical staff (veterinarians and animal production specialists) have been trained by ICARDA on machine use, interpretation of ultrasound

In his closing remarks, the DG acknowledged all stakeholders who have contributed to the success of livestock interventions in the region. He particularly recognized the consistent commitment of ICARDA in improving sheep production in the region over the past several (5) years.

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