

activities. Several research activities were developed to give an answer to householders. Socioeconomic and ecological characterization may be used as a base line for future impact studies.

76. Basic steps towards a participatory research approach to improve goat and sheep production systems in the Mexican semi arid: II. Demand detection

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The second part of the study (primary information of the system level) is reported here. The system level, a survey was carried out where 63 householders who raise goats and sheep, were included. Questionnaires included socioeconomic and technology aspects of the herd management. Agricultural activities are the main purpose of the householders interviewed. They raise goats and sheep as a saving purpose, thus, technology level given to goats, corresponds to the necessary to survive. The stubble constitutes the only supplementation given to goats and sheep and that is given during the drought season (December to May), which lead to a reduced milking season; vaccination for brucella is high (84%), but no other sickness is controlled, deworming is made once a year, as examples of the technology level. Some research activities which can improve the householder's inputs were detected, such as kid goat sales as well as increment of milk production. However, householders expressed in workshops, which are mechanisms to obtain additional information, some concerns about the lack of new crops which can be a better option than beans, which is the main crop grown in the State. That implies more interest on agricultural activities instead of animal production. Several research activities were developed to give an answer to householders.

77. Maintenance of protected biotopes in Germany by goats keeping

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The very diverse cultural landscapes of Europe landscapes have been created by man's activities over many thousand of years. With the agricultural development farming in remote and hilly areas decreased. Landscapes and biotopes became endangered without farming. Especially abandoned farmland becomes rapidly invaded by shrubs and need maintenance (92/43/EU). But, mechanical or manual shrub clearance costs are high. Goats, however, can help to conserve and maintain shrub-endangered pastures (Rahmann, 2000). In Germany, goats are usually kept on grassland that is free of shrubs. There is no practical experience of goat-grazing on protected and shrub-invaded grassland (Rahmann, 2007). In a six-year experiment an investigation was conducted to analyse the ecological effect of goat-browsing on protected biotopes (*Gentiano-Koelerietum*), aspects of animal welfare and the impact on the economics and production performance of goat farming. The research was carried out on 14 ha of protected biotopes (*Gentiano-Koelerietum*) in the hilly area of middle Germany. It involved 50 female goats (German Alpine goats, Bure goats, Cashmere goats). The management of the goats was undertaken according to organic farming rules (1804/99/EU) (Rahmann, 2004). The biotopes were steeply inclined (>15°; no tractor access possible), dry (xero- and oligotrophic vegetation) with swallow soils (type: *calcareous Rendcina*), and 50 % to 100 % covered with invaded shrubs (max. of 20 % is acceptable by the biotope conservation concept). The biotopes were managed under the nature conservation rules of the EU-biotope management standards of 2078/92/EU. These standards are even more restrictive than the rules of organic farming: no supplemental feeding of the animals, short grazing period (summer), no melioration of the natural flora, fauna or habitat other than the impact of the grazing and the definition of specific husbandry techniques (mobile fences, no shelter). The results of the experiment showed, that goats can help to maintain shrub invaded biotopes without in-acceptable negative impacts on the protected biodiversity of the pastures. The animal welfare is improved with shrub browsing. The growth performance of boer goat kids was better than alpine and cashmere goat kids. The maintenance costs with goats are fare lower than mechanical and manual clearance costs.



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