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Farmer-participatory evaluation of summer feeding strategies in Afghanistan : growth of cow-calf pairs grazing native pasture supplemented with oil-seed cake

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Key words : farmer-participatory evaluation , oil-seed cake

Introduction In Afghanistan , cattle are important for land cultivation and milk production , with dung as a valuable by-product for soil fertility maintenance or as fuel (Thieme , 2000) . Native pastures and crop residues , supplemented with fresh fodder crops , hay from fodder crops , agricultural by-products , and concentrates are the major feed resources . A recent village survey in Baghlan province , northern Afghanistan showed that farmers give different amounts of home-produced or purchased concentrates such as cotton (CSC) or flax (FSC) seed cake as supplement to cows and non-weaned calves (cow-calf pairs) grazing native pastures during the spring and summer seasons . There is no quantitative data on the effect of oil-seed cake supplementation on performance of grazing cattle in Afghanistan . Farmer-participatory trials were , therefore , conducted to determine the effect of supplementing different levels of CSC or FSC on growth rate of cow-calf pairs grazing native pastures as part of the project on Improved rural incomes from better forage production and sales of milk products funded by United Kingdom s Department for International Development (DFID) .

Materials and methods Two on-farm experiments were conducted using crosses of Kandary-Fresian or Sistani-Fresian cow-calf pairs in five villages . In each experiment , 40 cow-calf pairs belonging to the participating farmers were selected and divided into four groups , each group consisting of 10 cows and 10 calves . The groups were allocated randomly to one of the four treatments or feeding systems shown in Figure 1 : 0 , 2 , 3 or 4 kg/day CSC (Experiment 1) or the same levels of FSC (Experiment 2) . Cows averaged 5.7+1.56 years in age with an initial live-weight of 159.5+16.1 kg ; whilst the initial live-weight of the calves averaged 37.4+16.2 kg . The cow-calf pairs grazed native pastures from 08 :00-6 :00 hours daily . The supplements were offered after grazing from 18 :00 hours till 07 :00 hours the next day . Liveweight of the cows and calves was estimated every 14 days for a period of 42 days .

Results Total dairy gain of the cow-calf pairs grazing native pasture increased ($P < 0.05$) with either CSC (Figure 1a) or FSC (Figure 1 b) supplementation . Cow-calf pairs supplemented with 3 kg CSC or FSC per day had similar ($P > 0.05$) growth rate as those offered 4 kg CSC or FSC per day in both Experiments . This indicates that , for resource-poor farmers supplementing cow-calf pairs grazing native pastures with 3 kg CSC or FSC per day may be more economical . Total weight gain of cow-calf pairs supplemented with FSC was generally higher than those supplemented with CSC .

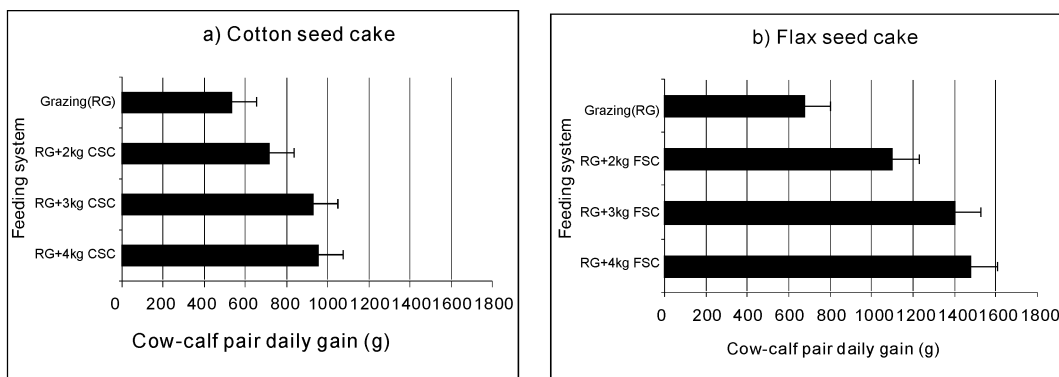


Figure 1 Total daily weight gain of cow-calf pairs grazing either native pasture only (RG) or native pasture supplemented with different levels of cotton (CSC) or flax (FSC) seed cake , Baghlan Province , northern Afghanistan .

Conclusion Growth rate of cow-calf pairs grazing native pastures during summer in northern Afghanistan or similar environment could be increased significantly with a daily supplement of 2-3 kg of either CSC or FSC .

Reference

Thieme O , 2000 . *Country Pasture/Forage Resources Profile , Afghanistan* . 18 pp .