ABSTRACTS

Studies on Some of the Productive, Reproductive and Behavioural Aspects of Camel in Pakistan

Arshad Iqbal & Raza AIi Gill
Dept. of Livestock Management, University of Agriculture, Faisalabad

The parameters focussed upon in this study included some endocrinological and a few behavioural aspects of camels, growth rate of camel calves, milk production and its composition, and certain welfare traits. Quantification of the principal hormones i.e progesterone (P) and estradiol-17f} (E,) in six she-camels was done through radioimmunoassay, starting from 28 days before mating on alternate basis and for the same number of days postmating (both during follicular and luteal phases). Of the total active browsing time, adults and sucklers spent 25.55 and 26.14% time respectively in browsing *Acacia modes/a* (Pholai), while youngstock browsed *Olea ferruginea* (Kahu) for maximum time (31.86%.). During the same course, certain miscellaneous activities such as duration of standing idle and rumination and frequency' of urination and defecation were also observed. Male camels on average spent 12.18 ± 1.06 min per coupling. She camels took on average 4.3 min to expel the foetus and 12.25 min in shedding placenta. Observations on newly born calves included time for elevation, ambulation, udder searching and first suckling attempt immediately after birth. Average daily growth rate of calves determined for first six months was 0.79 ± 0.01 kg attaining its peak (0.86 kg) in fourth month. They attained 126 ± 4.64 kg body weight during six months. Mean milk yield during first six months was 2100 ± 163 litres with an average daily yield of 11.66 ± 0.90 litres using thrice a day milking. Average percentage values of protein, fat, solids-not-fat, total solids and acidity in milk were 2.85, 3.57, 9.00, 12.36 and 0.20 respectively. Mean specific gravity of camel milk was 1.03 ± 0.007. Regarding welfare aspects, camels were found being put to work, irrespective of sex, at about 4 years of age. They were worked up to 8.68 hr daily in summer (with interval) and4.03 hr daily in summer (without intervaljIn winter, they worked throughout the day. Majority (61.33%) of camels were used for back load followed by their use for certain agricultural operations such as ploughing, planking, sugarcane crushing, chaff cutting and haulage of various agricultural commodities and for pulling carts. Males and females as pack animals carried on average about 414 and 306 kg respectively, while males pulled up to 3400 kg cart load with a range from 3200 to 4600 kg. In general, camels were found as being well looked after by the farmers as well as owners of. camel carts.

Studies on Production Potential of Mott Dwarf Elephantgrass and its Feeding Value in Lactating Nili-Ravi Buffaloes

Muhammad Qamar Bilal & Raza AIi Gill
Dept. of Livestock Management, University of Agriculture, Faisalabad

This work was undertaken to determine the effect of different levels of Nand FYM on production potential and proximate composition of Mott grass at various stages of growth and its biological evaluation by feeding to lactating Nili-Ravi buffaloes. Number of tillers/plant increased significantly with N or FYM application over control. At harvest, tillering was maximum (46.37 tillers/plant) in 300 kg N ha:' treatment while the number of tillers was minimum (21.25) in control. The plants attained maximum (157.32 cm) height with 300 kg N ha"' and minimum (111.47 cm) in control. The difference between 300 kg Nand 200 kg N + 8t FYM ha' was non-significant. Application of 300 kg N ha' produced 6.53 kg fresh weight per plant, being significantly higher than with all other treatments. The highest green fodder yield (64.62 t ha') was recorded in plots fertilized at 300 kg N ha'. The dry matter (DM) yield of Mott grass ha"' was 14.94 and 13.90 t ha', being significantly less than with all other treatments. A significant increase was observed in DM contents and various cell wall constituents of whole Mott grass plant and leaf and stem fractions with maturity, whereas an almost corresponding decrease occurred in crude and true protein, ether extract, ash contents and in vitro dry matter digestibility (IVDMD) with advancing maturity. A slow increase in DM contents was recorded up to 30 days age of Mott grass. thereafter it increased rapidly. There was noticed a gradual

increase in lignin contents of the plants and a consequent steady decline in IVDMD with advancing stages of plant growth. Average DM and crude protein intakes of all the experimental diets were statistically the same when fed to 12 Nili-Ravi buffaloes in four groups of three each. Different dietary treatments had no effect on milk yield and its composition. Similarly, the ruminal pH remained unaffected. However, rumina I ammonia was higher in buffaloes fed Mott grass and Mott silage separately compared to those fed Mott grass and its silage in combination. Dry matter and crude fibre digestibility was significantly higher in buffaloes given Mott grass and its silage in combination than in those fed Mott grass and Mott silage separately in different. groups.

Epidemiology and Chemotherapy of Fascioliasis in Buffaloes and Cattle

Azhar Maqbool & Ch. Sikandar Hayat
Dept.. of Clinical Medicine and Surgery, University of Agriculture, Faisalabad

An epidemiological study of fascioliasis was conducted in buffaloes and cattle along with its chemotherapy with different indigenous drugs. The highest prevalence of fascioliasis was found in animals at livestock farms followed by those brought for slaughter at abattoirs and for treatment at veterinary hospitals. The lowest infestation was found in household animals. Younger animals exhibited lower prevalence than older ones. Sex did not show any specific bearing on the prevalence of this disease. Among various districts in Punjab (Pakistan) earmarked for this study, Gujranwala showed the highest prevalence followed by Lahore, Sargodha, Jhang and Faisalabad. Seasonwise, the highest prevalence of this disease was recorded during autumn and the lowest in summer.. Buffaloes were found to be more prone to fascioliasis than cattle. The snails of seven genera (Lymnaea, Indoplanorbis, Bulinus, Physa, Gyraulus, Bellamaya and Oncomelonia) were identified. Lymnaea snails were more prevalent and were responsible for transmission of fascioliasis. The highest presence of 'these snails was recorded at Gujranwala. Seasonwise, it was the highest in summer and declined to the lowest in spring. A temperature range of 15 to 25°C was required for optimum multiplication of snails and fluke larval stages. Relative humidity from 50 to 65% was found to be favourable in this respect.. Rainfall during summer months was found to help the miracidia for snail infection and dispersal of cercariae shed from snails. *Nigella sativa, Fumaria parviflora, Caesalpinia crista, Saussurea lappa* and triclabendazole (control group), were found effective against fascioliasis. *Fumaria parviflora* @ 60 mg/kg body weight was as much effective as triclabendazole for the treatment of fascioliasis.

Impact of Moisture Regime and Planting Pattern on Blo-economic Efficiency of Spring Planted Sugarcane *(Saccharum officinarum* L.) Under Different Nutrient and Weed Management Strategies

Faqir Gulzar Ali & Mahboob Akhtar
Dept.. of Agronomy, University of Agriculture, Faisalabad

The study was based on two experiments repeated over a period of two years. The layout design for both the experiments was randomized complete block design with a split plot arrangement, having four replications. The test variety was CP 70-1547. In the first experiment, three irrigation regimes viz. irrigation at 1.2, 1.0 and 0.8 irrigation, coefficient (K) according to pan evaporation were randomized in the main plots, while fertilizer levels viz. 0-0-0, 100-0-0, 100-100-0, 100-100-100, 150-100-100, 200-100-100 and 250-100-100 NPK kg ha'l respectively were allocated to.subplots. Two years average revealed that the crop raised under irrigation regime. of 1.2 K and fertilized @ 250-100-100 kg NPK ha' produced the maximum cane yield of 119 t ha:'. However, during first year, the differences between 200-100-100 and 250-100-100 treatments were non-significant. Maximum fertilizer use efficiency (FUE) of 189 kg kg' of nutrients was recorded in 1.2 K irrigation coefficient and FUE was the highest (252 kg kg') in 100 kg N ha' treatment. In the second experiment, four planting patterns (planting in 60 cm spaced rows, pit plantation in 100 cm spaced 100 cm x 100 cm pits, trench planting in 100 cm spaced trenches and hill plantation in lOO cm spaced) were randomized in subplots. The results showed that maximum stripped cane yield of 131 t ha' was recorded in pit plantation with cultural weed control treatment. . Pit plantation resulted in minimum weed growth and thus it helped the crop in realizing the full benefits of applied water and nutrients. It gave maximum water-use efficiency (87.41 kg mm' of water). On the basis of bominance Analysis, pit plantation with cultural weed control gn.: the maximum net benefits.

Production Efficiency of Canola (*Brassica napus* L.) Under Different Agro-Managernent Practices

Mumtaz A. Cheema & Muhammad Asghar Malik
Dept. of Agronomy, University of Agriculture, Faisalabad

Field experiments were conducted to determine the growth and production efficiency of canola under different agro-management practices. Experiment I was laid out in split plot with time of fertilizer application in the main and fertilizer rates in the subplots. The treatments comprised fertilizer application thrice (full N + full P at sowing; half N + full P at sowing and half N at first irrigation; half N + full P at sowing + half N at flowering) and six fertilizer rates (0-0, 60-0, 0-30, 60-30, 90-60 and 120-90 kg NP ha^{-1}). Plot size was 2.7 m x 5 m with 45 cm interrow and 15 cm intrarow spacings. The results revealed that the time of application did not affect the yield components significantly but fertilizer rates significantly enhanced the leaf area index (LAI), total dry matter (TDM), seed and oil yield over the control or lower rates of fertilizers. Maximum average seed yield (1840 kg ha^{-1}) was obtained with 90-60 kg NP ha^{-1} which could be attributed to the increased number of pods plant^{-1}, seeds pod^{-1} and seed weight. However, maximum oil contents (42.95%) were recorded for the control treatment. Experiment II was laid out in a randomized complete block design. The treatments comprised three row spacings (30, 45, and 60 cm) and three plant spacings (10, 15 and 20 cm). Plot size was 1.8 m x 5 m and crop was fertilized @ 90 kg N and 60 kg P ha^{-1}. The results showed that row spacing of 30 cm increased LAI over those of 45 or 60 cm. Similarly, plant spacing of 10 cm also significantly enhanced LAI than that with 15 or 20 cm throughout the season. Maximum seed yield (1953 kg ha^{-1} as average of two years) was observed in 30 cm row spacing with 15 cm interplant spacing. Maximum oil contents (41.51% as average of two years) were observed in 60 cm row spacing with 20 cm plant spacing treatment.

Studies on Seed-Borne Fungi of Certain Vegetables Grown in Punjab with Special Reference to *Alternaria radicina*

Abdus Shakoor Shakir & Sultan Mahmood Khan
Dept. of Plant Pathology, University of Agriculture, Faisalabad

To investigate the seed mycoflora of six vegetables namely bottle gourd, carrot, eggplant, spinach, sponge gourd and Tinda gourd, 336 seed samples were collected from different divisions of the Punjab (Pakistan) and tested using the blotter paper method, which was found to be highly suitable being simple, less time consuming and economical compared to agar plate method. The number of seed-borne fungi and their incidence was reduced by pretreatment with mercuric chloride. It was indicated that fungi present even after pretreatment were internally seed-borne and were not surface contaminants. Ten fungi which were internally seed-borne, proved pathogenic to different vegetables. *Alternaria radicina* depressed germination of carrot seed and caused seedling blight as well. When subjected to carrot disk pathogenicity test, *A. radicina* produced black necrotic lesions. The study of different seed components for the presence of *A. radicina* showed that it was present in pericarp and not in endosperm or embryo. Transmission studies of this fungus revealed that hypocotyle and roots of dying seedling of carrot harboured nearly 90% of *A. radicina*. It was also found that 4% infection with *A. radicina* of seed meant for sowing could safely be tolerated. Twenty seed-borne fungi were detected from the carrot seeds kept in storage. The highest recovery was that of *A. radicina* followed by other species of *Alternaria* and those of *Aspergillus* and *Fusarium*. These fungi are said to produce various toxic metabolites. Seed treatment with captan and seed diffusate of *Azadirachta indica* resulted in satisfactory control of *A. radicina* and improved the germination of carrot seed.