
SHORT SCIENTIFIC NOTES

Fertility in Relation to Different Haemoglobin Variants in Haryana Cows

Several attempts have been made to correlate haemoglobin types with fertility in sheep^{1,2}. However, there appears no published information on the possible association between Hb types and fertility in Zebu cows. The present note reports the same. 645 Haryana cows of different Hb phenotypes were randomly bred to different bulls irrespective of their Hb types over a period of 4 years. Hb AA cows produced significantly more calves (62.6%) than either Hb AB (47.5%) or Hb BB (51.1%) animals. In addition, Hb AA animals appeared to calve at a significantly earlier age (1237 ± 28 days) than the Hb AB (1336 ± 32 days) and Hb BB (1340 ± 25 days) types. Calving interval was also slightly, though not significantly, shorter in Hb AA cows. Since Hb type in cattle is inherited as a simple Mendelian trait³, advantage can perhaps be taken of this apparent association between Hb types and reproductive efficiency for improving fertility in Zebu cattle through controlled breeding based on this physiological trait.

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Mathura (India), July 4, 1974.

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Fertility in Relation to Red Cell Potassium Types in Murrah Buffaloes

A recent study¹ has indicated that the distribution of red cell potassium in buffaloes is genetically controlled. The possible association between red cell K⁺ types and reproductive performance in Murrah buffaloes is reported here. The study was carried out with 256 buffalo cows and 11 buffalo bulls over a period of 3 years. Female fertility was nearly identical in HK (48.4%) and LK type (45.7%) of buffalo cows. In contrast, male fertility appeared to be related to red cell K⁺ types, the trend being in favour of LK animals. Gross initial motility (LK — 2.02 and H.K. — 2.6), live sperm concentration $\times 10^6/\text{ml}$ (LK — 1348, HK — 979) and fructolytic index (HK — 1.75; LK — 1.40) were significantly more in LK type than in HK type of bulls. Moreover, the LK bulls

appeared to be significantly more fertile (50.4%) than the HK bulls (33.8%). The no. of services per conception was not significantly different in the two groups (HK 1.86; LK 1.75). The present findings point to the practical possibility of selection of potentially more fertile young bulls at a very early age on the basis of red cell K⁺ type.

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Additions to the Host Range of Bottle Gourd Mosaic Virus

A mosaic disease of bottle gourd (*Lagenaria leucantha*) is wide spread in Aligarh. Detailed studies with regard to the host range, symptomatology, thermal inactivation, longevity *in vitro*, dilution end point, transmission behaviour revealed that the virus is identical to the one described by Vasudeva *et al.*² and Shanker *et al.*¹. In the host range studies, however, *Commelina nudiflora*, *Mukia maderaspatana* and *Salvia* sp. proved to be additional hosts of the virus. All these plants showed visible symptoms and the virus was recovered on back inoculation to *L. leucantha*. Though no visible symptoms were evoked on *Cucurbita pepo*, *Gomphrena globosa* and *Impatiens balsamina* yet on back inoculation virus was recovered and thus they served as symptomless carrier of the virus. *Datura stramonium* was described earlier (Vasudeva *et al.*²) as symptomless carrier, however, it was proved to be non-host in the present studies.

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1. Shankar, G., Nariani, T. K. and Prakash, N., *Indian J. Microbiol.*, 1971, 11, 43.
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Record of the Greenhouse Whitefly *Trialeurodes vaporariorum* (Westwood) on Tomato

The greenhouse whitefly *Trialeurodes vaporariorum* (Westwood) was first reported to occur in India by David¹ infesting potato (*Solanum tuberosum*) at Thummanatty (Nilgiris). Recently, the

insect was noticed for the first time to infest severely tomato (*Lycopersicon esculentum*) plants and to a mild extent French bean (*Glycine max*) at Kotagiri (Nilgiris).

The species being a plastic one exhibits conspicuous variation which can be correlated with the physical properties of the leaves it inhabits. The specimens collected agreed with the structural features of the pupal cases that occur on moderately hairy leaf, except for the difference in the length of the 8th abdominal setae which were about $87\ \mu$ long as against 10 to $20\ \mu$ in the normal form.

The occurrence of the whitefly at Thummanatty and Kotagiri indicates that the species is widely prevalent in the Nilgiris and a thorough search may add to the discovery of additional hosts.

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1. David, B. V., *Studies on South Indian Aleyrodidae*, Doctoral Thesis, Tamil Nadu Agricultural University, Coimbatore, 1971.

Grafting Behaviour Between *Lycopersicon esculentum* L. Var. Marglobe and *Solanum* spp. (*Solanum torvum* and *S. melongena* L.)

Grafting has been an important method of overcoming incompatibility barriers in crosses between species of the genus and genera of the family. Hely *et al.* (1953)¹, grafted *Trifolium repens* on to *T. ambiguum* and achieved good result. Later, Nirk (1959)² obtained eight self sterile interspecific hybrids by grafting prior to crossing, *L. esculentum* and *L. peruvianum*. In the present study, wedge grafting was used to make grafts between *Solanum* spp. and *L. esculentum*. *Solanum torvum* which is a perennial species with an elaborate root system and which is a hardy crop, was used as stock and *L. esculentum* was used as scion. The objects were to examine the possibilities of making *L. esculentum* perennial, increase its life span, make it drought and disease (wilt) resistant. Observations revealed that stock-scion establishment was early, remained for a longer period with profuse flowering in *S. melongena* and *L. esculentum* grafts compared to *S. torvum* and *L. esculentum*. In addition, the number of successful grafts were more in the former grafting than in the latter. But in both the cases the grafts could not be made to remain

perennial. Pollen studies in the grafted plants indicated no significant pollen sterility. A plausible explanation for this failure may be the inability of *L. esculentum* to maintain the seasonal hormonal balance like *S. torvum* which is perennial.

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2. Nirk, H., *Ibid.*, 1959, 184, 1819.

ANNOUNCEMENTS

Nominations for Science Academy Medals for young Scientists for 1975 are invited. The last date is February 28, 1975. For details please apply to the Executive Secretary, Indian National Science Academy, New Delhi-1.

Award of Research Degree

Karnatak University, Dharwar, has awarded the Ph.D. degree in Chemistry to Mrs. Renuka Rani Nagendrappa for her thesis entitled "Some Studies of Donor Acceptor Complexes"; Ph.D. degree in Zoology to (Miss) K. Dakshayani for her thesis entitled "Influence of Nutrition, Temperature, Groupsize and Photoperiod on Nymphal Growth and Development of the Cricket, *Pleaeiogryllus guttiventris* Walker"; Ph.D. degree in Chemistry to Shri Mohan Ramanath Shanbhag for his thesis entitled "Studies in Fatty Acids"; Ph.D. degree in Zoology to Shri Srinivas Kishanrao Saidapur, for his thesis entitled "Studies on the Gonads of *Rana gyanophlyctis*, *Rana tigrina* and *Bufo melanostictus* (Amphibia) with reference to steroidogenic cellular sites"; Ph.D. degree in Geology to Shri Veerappa Chanbasappa Chavadi for his thesis entitled "Geology of the mafic and the other associated rocks of Savantavadi area, Ratnagiri District, Maharashtra State".

Osmania University, Hyderabad, has awarded the Ph.D. degree in Physics to Shri Sarada Prasad Mohanty for his thesis entitled "Theory of Orbital Susceptibility of Metals with complicated crystal structures"; Ph.D. degree in Physics to Shri S. P. Mallikarjun Rao for his thesis entitled "Ultrasonic Studies in Liquids by Reverberation Technique"; Ph.D. degree in Chemistry to Shri P. K. Sai Prakash for his thesis entitled "A Kinetic Study of some Aspects of Oxidation of Organic Substrates".