

GENETICS NEWS LETTER

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It is with great pleasure that the committee of your Society presents the first number of the News Letter. Our aim is to bring geneticists, and breeders into closer contact than through the method of occasional Congresses. By presenting news about geneticists, current research being carried out at various centres, available strains of various genetic organisms, and short research notes, it is hoped that this aim will be accomplished. The success of the venture will depend on your willingness to cooperate by the provision of these different items.

The original intention was to publish one issue per annum, but it has been decided that if members will cooperate by forwarding information about items as they arise, the accumulating copy will be published more often. Your regular contributions will therefore be greatly appreciated.

We would also gladly receive intimations of vacancies at the institutions to which members are attached, and, furthermore, we would be willing to include a short book and article review section in which members could call attention to worthwhile new books on genetics and breeding and related subjects or to articles of interest appearing in the more obscure journals.

D.J. Nolte, President
S.A. Genetic Society

Dit is met groot genoë dat die komitee van u Vereniging die eerste nommer van die Nuusbrief vir u kan voorlê. Ons doelwit is om genetici en telers in nouer aanraking met mekaar te bring dan deur die metode van 'n kongres elke vier jaar. Deur die aanbieding van nuus oor genetici, huidige navorsing in die verskillende sentra, beskikbare stamme van verskillende genetiese organismes, en kort notas oor navorsing, word die hoop uitgespreek dat die doelwit bereik sal word. Die welslae van die poging hang van u gewilligheid af om saam te werk in die verskaffing van hierdie verskillende items.

Die oorspronklike voorneme was om een uitgawe per jaar uit te reik, maar dit is nou besluit dat indien lede sal saamwerk deur inligting oor items gereeld aan te stuur, die ophopende materiaal meermale per jaar uitgereik sal kan word. U gereelde bydrae sal dus waardeer word.

Ons sal ook graag aankondigings ontvang van vakatures in die inrigtings waaraan lede verbond is, en is bowendien ook gewillig om 'n boek- en artikeloorsigsseksie in te sluit waarin lede aandag kan vestig op voortreflike nuwe boeke oor genetika en teling en verwante onderwerpe en op artikels van belang wat in die meer onbereikbare joernale gepubliseer word.

D.J. Nolte, President
S.A. Genetiese
Vereniging

Stuur asseblief materiaal vir publikasie in die Nuusbrief aan:

Dr. N. van Schaik
Dept. Genetika
Universiteit van Pretoria
Pretoria

Please send material for publication in the News Letter to:

Dr. N. van Schaik
Dept. Genetics
University of Pretoria
Pretoria

University of the Witwatersrand
Department of Zoology

Genetic recombination in locusts.

Two criteria for phase transformation of locusts, i.e. change from solitaria to gregaria, have been the melanization of hoppers and changes in morphometric ratios of adults, i.e. different relations between wing, leg and head size. Based on investigations in our Locust Research Unit, it now appears that a third criterion must be added, viz. the increased formation of chiasmata during meiosis in males through crowding. It is postulated that this increased genetic recombination of linked genes would be of selective advantage to a locust swarm arriving in a new habitat - different sets of isoalleles (and mutant genes) of the outbreak region population could segregate into combinations which might be of value in meeting new environmental conditions.

Research in the Unit has produced the following results. (i) Swarming hoppers excrete a pheromone into the atmosphere which stimulates the formation of melanin in the instars. (ii) This pheromone is more concentrated at floorlevel than higher up in the breeding room: solitary hoppers retain more melanin at floorlevel. (iii) At floorlevel the chiasma frequencies of isolated groups of 5 hoppers is higher than at the higher level. (iv) Chiasma frequency in an albino mutant is lower than in the parental normal strain, and solitarization does not reduce this frequency much. (v) Injection of haemolymph from crowded 4th instar hoppers into solitary 4th instar increases chiasma frequency in the latter. (vi) Extracts of locust room air in risella oil or dimethylsulphoxide induce increased chiasma frequency in solitaria. (vii) It thus appears that crowded locusts produce a pheromone which induces an increased rate of genetic recombination.

Whether the melanising and the chiasma-inducing pheromones are one specific product, or whether some substrate of the melanin cycle is responsible for chiasma induction is not as yet known but research is underway to clarify this problem.

Dr. D.J. Nolte

University of Pretoria
Department of Internal Medicine
Department of Genetics

Sex-chromatin survey.

A sex-chromatin survey is currently being conducted on the patients at Weskoppies Mental Hospital. Cases with sex-chromatin incongruity and other phenotypically interesting cases will be investigated for sex chromosome and autosomal aneuploidy respectively.

Dr. I.F. Anderson
Dr. N. van Schaik

1. Genetics Dept., University of Stellenbosch

Chromosome 1

B
Hw^{49c}/FMI
sc cv ct v
v
w m f
w^e
y:= (attached-X)
Muller 5

Chromosome 2

b cn
cn bw^D
Cy L / Pm

Chromosome 3

e
se
th st p^p
D³ Sb ca² / Payne
R Ly / In(3L) P, gm
ve R / In(3L) P, gm

Chromosome 4

ci^W
ci^D / ey^D

Multichromosomal

ct; cn
dp; e
vg; e
vg; se
Cy/Pm; D/Sb
Cy/Pm; Ubx¹³⁰/Sb; pol
yf:=; bw; e; ey (attached-X)

Wild-type

OREGON

STB

PTA

Various high and low sterno-
pleural bristle lines from
PTA and STB.

2. Genetics Dept., University of Pretoria

Chromosome 1

B
C 1 B
ct
ct v dy g
g
Muller-5
sc ee cv ct v
v
w

w^a
w^{m4}
w m
w m f
y
y m
y:= (attached-X)
y w w^a

Chromosome 2

b
bw
bw dp
cl
cl vg

Chromosome 3

st th
se
se e
res
gl
e

Multichromosomal

bw; st
cl; e
se; vg
Cy/Pm; D/Sb
y; bw

Wild-types

OREGON-R

CANTON-S

WWR-2

Zea mays

1. Genetics Dept., University of Pretoria

Black Mexican Sweet Corn with and without B-chromosomes.
Trisomic-3 (a^pasta^m Dt) and tester.

Trisomic-10 (R^{nj}Rstr^g) and tester.

Abnormal chromosome 10.

Lys van Navorsers en Onderwerpe

- Prof. J.D.J. Hofmeyr (Hoof van Dept.)
Spesifieke aspekte van mielieteeelt veral die
benutting van die „waxy” eienskap.
Papajateling.
- Dr. J.M.P. Geerthsen (Senior Lektor)
Algemene mielieteling.
Die inkorporeering van hoë lisien genotipes.
Nabrotsting van ewolusionêre bevolkingsmodelle
met behulp van analog- en syferrekenaars.
Ontwikkeling van algemene rekenaarprogramme
vir die hanteering van teeldata.
- Dr. N. van Schaik (Senior Lektrise)
Controlling elements in maize.
DNA constitution of various maize lines.
Sex-chromatin survey of mental patients.
- H. Liebenberg (Lektor)
Sitogenetika van Themeda triandra.
- S.O. Shipham (Tegniese Assistant)
Drosophila
- A.F. du Toit (DSc. Student)
Genetiese beheer van oprengs in die mielie
variëteit, Pretoria Potchefstroom Pêrel.
- J. Brindley-Richards (DSc. Student)
Grass Breeding.
- H.J.L.R. Fechter (DSc. Student)
Bloedgroepe by Skape.
- H.M. Muller (DSc. Student)
Teling van Ricinis.
- Prof. D.R. Osterhof (DSc. Student)
Immunogenetical studies in S.A. cattle breeds.
- P.J. Robbertse (DSc. Student)
Criteria by die toetsing van mieliekultivars.
- Mej. M. Otto (MSc. Student)
Rekenaar bevolkingsmodelle.
- J.C. Schultz (MSc. Student)
Chromosoominversies by Drosophila.
- Mej. I.G. Heinichen (MSc. Student)
Caryotype studies of Perrissodactyla.
- Mej. G.M. Marais (MSc. Student)
Sitogenetiese tegnieke by diere.
- G.J. Hallowell (MSc. Student)
Genetiese parameters by vleisbeeste.
- R.G. Horsley (MSc. Student)
Genetic analysis of certain lines of light air
dried tobacco.
- A.G.C. Kotzé (MSc. Student)
Genetiese aspekte van wortelontwikkeling by
mielies.
- E.H.H. Meyer (MSc. Student)
Antigenic substances with naturally occurring
antibodies.
- P.J.A. van der Merwe (MSc. Student)
Kwaliteitsparameters by katoenteling.

STILLERBOSCH UNIVERSITY
DEPT. OF GENETICS AND
DEPT. OF AGRICULTURAL TECHNICAL SERVICES

List of Research Workers and Topics

WHEAT

Prof. F.X. Laubscher	Improvement programme.
Miss J.C. Theron	Improvement programme.
J.P. Jordaan	Sterility and fertility restorer factors.
	Evaluation of breeding merit. (Ph.D. Project).
P. du Toit	Estimation of genetic parameters (MSc. Project).
K.W. Pakendorf	Disease resistance & cytogenetics.
Prof. R. de V. Pienaar	Cytogenetics.
H.A. van Niekerk	Cytogenetics.
Dr. J.H. Louw	Studies in selection methods.

BARLEY AND OATS

Dr. B.E. Eisenberg	Improvement programmes. Inter-species crosses.
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ORNITHOGALUM

Prof. R. de V. Pienaar	Cytogenetic studies.
H.A. van Niekerk	Cytogenetic studies.

VEGETABLES

Prof. R. de V. Pienaar	Improvement of Onions, Carrots, Tomatoes, Cabbage.
H.A. van Niekerk	" "
P. du Toit	" "

POULTRY

Dr. J.S. Allan	Heritability of broiler weight.
Dr. J.E. Erasmus	Selection, Inbreeding and Cross- Breeding.
G.S. Strydom	" "

MAIZE

Prof. F.X. Laubscher	Improvement of sweet corn for canning.
	Breeding for varieties with high lysine content.
P.A. Kotzé	" "
J.G. du Plessis	" "

DROSOPHILA

Dr. J.H. Louw	Study of variation in bristle numbers.
J.J. du Toit	M.Sc. projects on selection for body weight.
A.E. Retief	" "

Twee van die stigterslede van die Genetiese Vereniging tree vanjaar af. Ons eerste president, Prof. J.D.J. Hofmeyr van die Dept. Genetika, Universiteit van Pretoria tree die einde van Junie af. Prof. G. Eloff, van die Dept. Genetika, Universiteit van die Oranje Vry-staat tree weens swak gesondheid vanjaar ook af. Ons wens Prof. Eloff beterskap vir die toekoms.

Dr. Ingram F. Anderson M.B.B.Ch. (Rand), MRCP (Edin), MRCP (Lond), has returned from an extended stay in Britain and the continent where he visited centres of Medical Genetics. He has recently joined the staff of the Department of Internal Medicine at the H.F. Verwoerd Hospital and University of Pretoria, as senior physician and senior lecturer. It is anticipated that a genetics counselling clinic and chromosome laboratory will be established in the Department in the near future.

Die Sekretaris van die Vereniging, Dr. J.G. Boyazoglu, van die Dept. Landbou-Tegniese Dienste, Pretoria, is as Landboursaad (Wetenskaplik) te Parys, Frankryk aangestel. Hy vertrek in April om sy nuwe pos te aanvaar. Mnr. Eduard Meyer wie pas van 'n studiejaar in Italië terug is, is as waarnemende Sekretaris aangestel. Mnr. Meyer is by die Irene Novorsingsinstituut van die Dept. Veeteelt en Suiwel, Pretoria, werksaam.

Dr. T. Jenkins of the S.A. Institute for Medical Research, Johannesburg, is spending a year working with Prof. Arthur G. Steinberg in the Dept. of Biology at Western Reserve University in Cleveland, Ohio, U.S.A.

Dr. A. Britz is as Senior Lektor in die Dept. Genetika by die Universiteit van die Oranje Vry-staat aangestel.

Dr. D.R. Woods has recently returned from a three year study course at Oxford University and a year of teaching at London University. His main work was on the genetics of yeast. He has been appointed Senior Lecturer in Microbiology in the Dept. of Botany at Rhodes University. Dr. Woods is organising a week's course in Microbial Genetics to be held at Rhodes from the 15th to the 20th of July, 1968. Dr. Nancy van Schaik of the Dept. of Genetics, University of Pretoria will assist with the course.

Dr. W.J. van der Walt, voer van die Dept. Landbou-Tegniese Dienste, Pretoria het by die Asgrow S.A. groep aangestel.

Dr. Ingeborg Hartmann-Goldstein, formerly of the Dept. of Zoology at the University of the Witwatersrand is now a lecturer in the Dept. of Genetics, University of Sheffield, where she is introducing a course in Cytology.

Dr. G. Harwin is as Senior Lektor in die Dept. Veekunde van die Univ. Pretoria aangestel.

Mnr. A. Smith, plantteker te Rietondale, Pretoria, vir die afgelope twee jaar, het 'n Wolraadbeurs ontvang waarmee hy vir een jaar in Australië sal werk ten einde ondervinding op te doen, veral ten opsigte van die teling van peulplante as wydingsgewasse.

Mnr. P.J. Robbertse is as genetikus by die Afdeling Saadbeheer, Landbou-Tegniese Dienste, Pretoria aangestel waar hy onder andere hulle behulpsaam sal wees met die uitvoer en beplanning van kultivarproewe.