Equator : informatieblad over veterinaire aspecten van ontwikkelingssamenwerking

EQUATOR

JAARGANG 5, NO 1 INFORMATIEBLAD OVER VETERINAIRE ASPECTEN VAN ONTWIKKELINGSSAMENWERKING

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Januari 1993

van de redactie

Met gepaste trots presenteren wij u, gewaardeerde lezer, het eerste nummer van de vijfde jaargang van EQUATOR. Het eerste lustrum! Zoals u ongetwijfeld opgevallen zal zijn, zijn er aan het begin van de vijfde jaargang een tweetal ingrijpende veranderingen doorgevoerd. Allereerst het uiterlijk. Na vier jaar vond de redactie het tijd worden het vertrouwde beeldmerk aan te passen. In het nieuwe beeldmerk heeft de evenaar een meer opvallende plaats gekregen als symbool voor de lijn waar Noord en Zuid elkaar ontmoeten.
Ten tweede is met ingang van deze jaargang de samenstelling van de redactie gewijzigd. De stichting DIO heeft zich teruggetrokken, maar zal EQUATOR wel blijven gebruiken als medium om de lezers te informeren over haar activiteiten. Derhalve is het Bureau Internationale Contacten van de Faculteit Diergeneeskunde met ingang van dit nummer de enige uitgever van EQUATOR. De redactie verwacht u op de gebruikelijke manier van relevante informatie te kunnen blijven voorzien. Wij houden ons echter aanbevolen voor eventuele op- of aanmerkingen, dan wel interessante kopy.

Wat heeft het eerste nummer van de nieuwe jaargang te bieden? Allereerst een vraaggesprek met Ing. Jan de Wolff, projectcoördinator van het "Kagera Livestock Development Programme", een door het DGIS en de Tanzaniaanse overheid gefinancierd melkveehouderijproject dat al meer dan 16 jaar met goede resultaten wordt uitgevoerd in de Kagera-regio in Tanzania. De Wolff benadrukt in dit interview dat alleen door een flexibele opstelling van zowel de donor als de projectverantwoordelijken een ontwikkelingsproject een succes kan worden. De arme plattelandsbevolking die deelneemt aan het project ziet haar inkomen met soms tweehonderd procent stijgen.
Ten tweede vraagt de redactie uw aandacht voor een verslag van de stage van twee studenten diergeneeskunde die zes maanden in Colombia doorbrachten.
Op basis van de resultaten van het door hen verrichte veld- en laboratoriumwerk, zullen zij binnenkort hun scriptie presenteren.
Tot slot: de gebruikelijke rubrieken blijven bestaan!

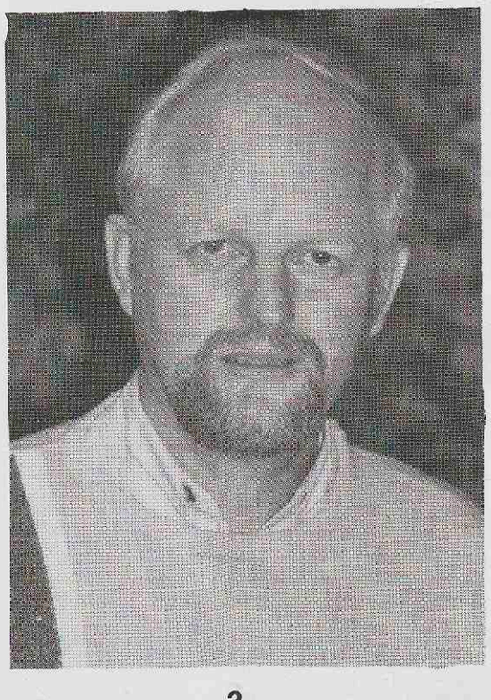
De redactie wenst u een goed geïnformeerd jaar toe.

KAGERA: FRIESLAND IN TANZANIA ?

Kalidep verzekert kleine boer van beter inkomen

Ondanks vele verhalen over mislukte ontwikkelingssamenwerkingsprojecten zijn er gelukkig ook projecten waar het wel lukt om de levensstandaard van de lokale bevolking op te waarderen. Een van die projecten is het Kagera Livestock Development Programme (KALIDEP) in de Kagera-regio in noordwest Tanzania. Toen het project in 1976 begon, bestond het slechts uit een component: de "heifer breeding unit". Doel was het fokken van kruislingen: 50% Fries bloed, 50% Boran bloed. In eerste instantie leverde het project aan vrij grote melkveebedrijven, maar tegelijk begon men met de verkoop van vee aan de kleine boeren. In deze eerste fase was het sterftepercentage van deze F1's in de eerste drie maanden ongeveer 80%. Deze bedroevende resultaten waren de aanleiding met twee subprojecten te beginnen. Het ene subproject bestond uit het opleiden van toekomstige melkveehouders en het andere uit het opzetten van een goede voorlichtingsdienst met voorlichters die over voldoende technische capaciteiten beschikken. Deze twee projecten zijn in januari 1982 begonnen. In 1983 was het sterftepercentage gezakt van 80% naar 10%. Momenteel schommelt het rond de 5%.
De "heifer breeding unit" is als bedrijf uitgegroeid van 12.000 ha naar de huidige grootte van 60.000 ha. Bij deze grootte ligt een jaarlijkse produktie van 500 drachtige F1 pinken binnen de verwachting. Vandaag de dag blijft 95% van de geleverde vaarzen binnen de Kagera-regio en de belangstelling voor het vee groeit nog steeds. Het project en de voorlichtingsdienst begeleiden momenteel ongeveer 1.600 boeren, die ongeveer 5.000 stuks vee hebben en jaarlijks rond de 3.000.000 liter melk produceren. De bedoeling is om in de toekomst naar een 700-800 nieuwe boeren per jaar te gaan.
De redactie van EQUATOR had een gesprek met Ing. Jan de Wolff, projectcoordinator van dit door het DGIS en de Tanzaniaanse overheid gefinancierde veehouderijproject. De Wolff, die voor verlof in Nederland terug was, vertelt over de verschillende fases die het project inmiddels heeft doorlopen, de problemen die hij en zijn medewerkers daarbij ondervonden en geeft zijn visie op de (nabije) toekomst.

De opzet van de "heifer breeding unit"
Op het fokbedrijf worden de koeien op een zo goedkoop mogelijke manier, dus heel extensief, gehouden. Op een centraal punt wordt een aantal koeien geinsemineerd. Bij andere kuddes loopt een lokale stier om te zorgen dat wij in de toekomst "replacement stock" blijven houden. Het bedrijf is volledig "selfsupporting" wat het eigen fokmateriaal betreft. De koeien worden verkocht aan het ministerie van landbouw, waar ook de voorlichtingsdienst onder valt. Het ministerie, en dus het project, betaalt voor de koeien aan het bedrijf.
We hebben een kredietvoorziening voor de startende boeren ontwikkeld, omdat de prijs van koeien momenteel te hoog voor hen is.
Als een boer rijk is, moet hij zijn koe cash betalen, heeft hij geen geld dan betaalt hij alleen administratiekosten. Hij of zij is dan wel verplicht al onze instructies te volgen. Doet hij dit niet, dan halen wij, eventueel met geweld, die koe bij hem vandaan. Het eerste vaarskalf van die koe moet de boer fatsoenlijk opfokken. Heeft het een goede groeicurve, dan wordt dat vaarskalf als het drachtig is naar een andere boer gestuurd. Je kunt zeggen: het is een "passing of the gift". Via deze methode krijgen wij in de toekomst een steeds groter aantal koeien. Het is een aanvulling op de "heifer breeding unit". We kunnen er voor zorgen dat over 10 - 20 jaar een aanzienlijk deel van de bevolking in de Kagera-regio 1 à 2 melkkoeien kan houden.

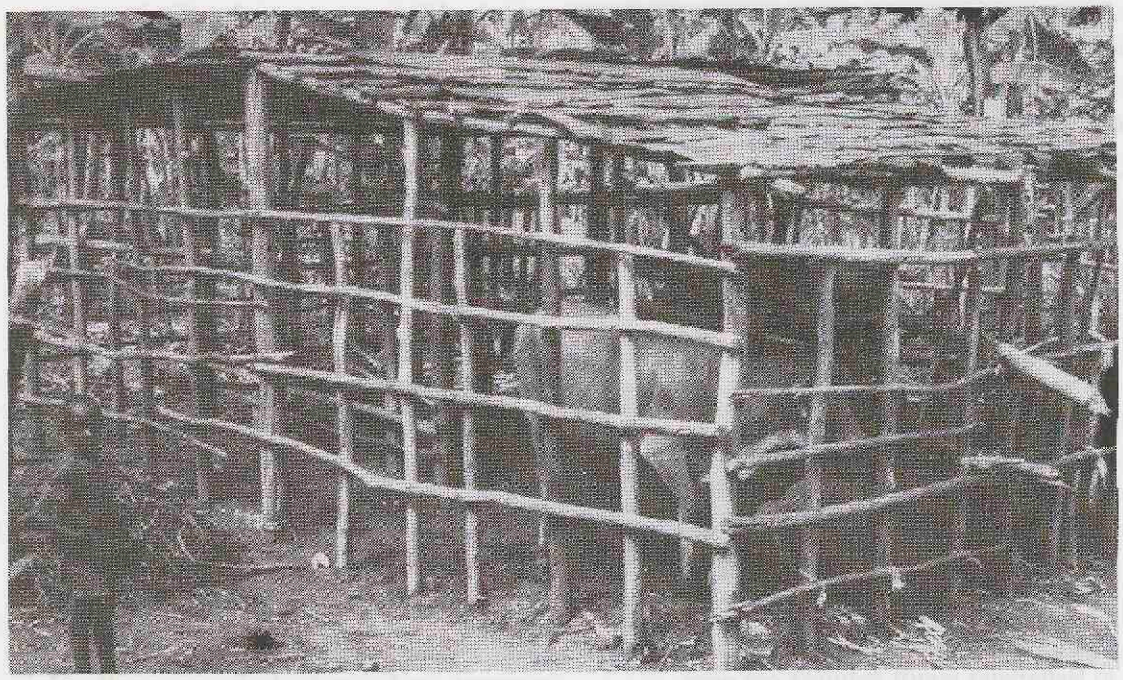


Jan de Wolff: flexibele benadering
(foto: De Gooijer)

Goede voorlichting is essentieel
We hebben momenteel vijftig voorlichters, die boeren die melkveehouder willen worden, begeleiden. Ze hebben allemaal een motorfiets. Om melkveehouder te worden moet je voldoen aan een aantal eisen. Je moet een stalletje bouwen, dat kan heel goedkoop met lokale materialen, je moet voedergras hebben en je moet een week naar een trainingscentrum toe.
Vervolgens wacht de kandidaat twee tot vier maanden op zijn koe. De wachttijd kan soms oplopen tot wel negen maanden, afhankelijk van de "voorraad". Als de boer z'n koe krijgt, is de voorlichter verantwoordelijk voor het verzamelen van gegevens bij die boer en voor "simple veterinary work".

Langzaamaan verleggen we het accent naar velddagen en opfriscursussen om bij de boeren bepaalde kennis weer naar boven te halen.

Voorlichting en veterinaire zorg
Momenteel werken er een stuk of tien veeartsen op het project. Sommigen werken volledig administratief en zien niet zo vaak een koe meer, anderen werken voor 100% in het veld en doen zo behoorlijk wat ervaring op.
De oudere generatie is in Kabete, Kenya, getraind, de jongere generatie in Morogoro, Tanzania. Van de eerste lichtingen van deze laatste opleiding viel de kwaliteit in eerste instantie tegen. De latere lichtingen leverden hele goede veeartsen.



Zero grazing is een absolute voorwaarde voor een gezonde melkveestapel in de Kagera-regio (foto: Schukking)

In gebieden waar de concentratie van melkvee gering is, stationeren we geen veearts. Met melkvee bedoel ik kruislingen die half Boran (inlands ras, red.) en half Fries zijn. In gebieden met veel melkvee plaatsen we wel een veearts. De voorlichter heeft daar meer tijd voor zijn eigenlijke activiteiten.
Beiden werken onder de verantwoording van de "district livestock officer".

Opfriscursus dierenartsen

Binnenkort vertrekt er een dierenarts van de vakgroep Bedrijfsdiergeneeskunde en Voortplanting van de Faculteit Diergeneeskunde te Utrecht naar Kagera, voornamelijk om een "refreshment course" te geven aan de huidige dierenartsen. Verder zal hij eventuele door hem geconstateerde benodigdheden en behoeften met ons bespreken. Dan moeten we verder van jaar tot jaar zien in hoeverre er behoefte is aan verdere vaktechnische begeleiding. De behoefte aan goede leraren en trainingen is een component die bij ons hoog in het vaandel staat.
Ik ben zelf geen veearts. Het is voor mij daarom moeilijk in te schatten waar bij ons nog bepaalde foutjes zitten. Een normale boer die een koe heeft van 100.000 shilling (*f* 500,-), beschouwt dat als het duurste "apparaat" dat op zijn bedrijf is. De kapitaalwaarde van zijn bedrijf gaat met sprongen omhoog. Hij heeft maar een koe, zodat de veterinaire zorg bij deze mensen nummer een is.

Veterinaire problemen

Met het fokprogramma zelf hebben we niet veel veterinaire problemen. Vibriose bijvoorbeeld komt niet veel voor. De veterinaire problemen die we hebben liggen vooral op het gebied van de tick-borne diseases. Vooral East Coast fever is nog steeds een grote boosdoener. Alhoewel, de boeren worden verplicht al ons vee op zero-grazing te houden, waardoor de kans op het uitbreken van ECF sterk beperkt wordt. Daarnaast behandelen we met Claxon^{R} en met Butalex^{R}, maar dat is voor een lokale boer een hele grote uitgave.

Het project zorgt er voor dat alle medicijnen beschikbaar zijn op relatief korte afstand tot de boeren. Maar we verlenen absoluut geen krediet, alles gaat cash. Ons advies is om lokale spaargroepjes te vormen, die hun geld eventueel in de kluis kunnen leggen in een gesloten envelop. Dat geld kan dan gebruikt worden als een van hun leden pech heeft. Dit advies is vrij recent, maar ik weet zeker dat het bij bepaalde boerengroepen wel zal draaien. Dat hangt met name af van het leiderschap in de groep.

Geen sinterklazen

De boeren hebben bepaalde rechten, maar ook bepaalde plichten. De veehouderij is zeer winstgevend, dus we hoeven niet lief te zijn. Wij zijn tegenstanders van subsidie, de boer betaalt de echte kosten. Het is wel zo dat de boeren arm zijn, ze hebben een heel laag inkomen. Ik schat dat de gemiddelde boer in Tanzania gemiddeld 300 - 400 gulden verdient per jaar. Onze melkveehouders, hebben we berekend, verdienen daar bovenop ongeveer zo'n duizend gulden per jaar. Deze duizend gulden heeft men brood- en broodnodig en je ziet dat het meeste geld dat men voor zuivelprodukten ontvangt naar zaken gaat die als eerste behoefte beschouwd worden, zoals schoolgeld en kleding.

Aandacht voor goede bedrijfsvoering

Melkveehouderij is ontzettend arbeidsintensief en je moet rekenen dat we momenteel 1850 liter melk per jaar per koe gemiddeld over het hele project produceren.
Van boeren met een ontzettend goed management worden in ons programma alle data verzameld en verwerkt in de computer: tochtigheid, inseminatiedata, door welke stier is gedekt, afstamming van alle beesten, inmiddels meer dan 15.000, etcetera. De boer is verplicht maandelijks deze informatie aan ons te leveren. Als hij deze verplichting niet nakomt, komt hij niet in aanmerking voor onze service, zoals veterinaire begeleiding en het kopen van medicijnen.

Uit deze gegevens blijkt dat de tussenkalftijd tot op heden nog veel en veel te lang is. Daar zijn diverse redenen voor: Ten eerste de afstand tot de stier. De meeste boeren hebben maar een koe. Je kunt niet voor elke boer een stier hebben. Soms is er ruzie in het spel, soms zijn er geen goede contacten, soms een te grote afstand van de ene boer naar de andere. Dit zal in de toekomst ook blijven. Ten tweede is bij bepaalde bedrijven de tochtigheidswaarneming gering. Er komt ten derde nog bij dat opfokken behoorlijk wat geld kost. De prijs van koeien is hoog. Melkgeld heb je gelijk, en een iets langere tussenkalftijd hoeft heus niet financieel nadelig te zijn. Het kan zelfs profijtelijk zijn.

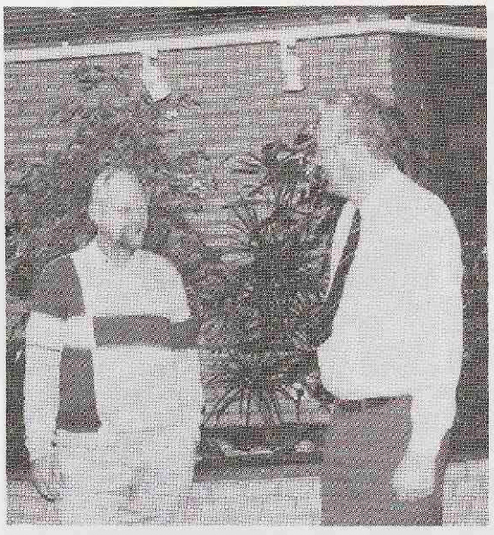
Lokaal vee vergt een totaal ander managementsysteem, waarbij je ook diverse subsystemen kan onderscheiden. Nomaden bijvoorbeeld hebben per koe tijdens een lactatieperiode van 150 dagen gemiddeld 1 liter melk per dag. In het Bahima (lokaal herdersvolk, red.) systeem heeft men een nog lagere produktie en veel langere tussenkalftijden.
Nomaden hebben totaal geen interesse voor zero grazing. Men wil wel koeien die meer melk geven, maar ze realiseren zich dat ze kruisingen met Friese stieren niet kunnen houden. Dat is denk ik een van de grootste verantwoordelijkheden van het project, dat men niet willekeurig met kruislingen begint. De meeste boeren zijn zich

terdege bewust dat zo'n kruislingkalf een totaal ander dier is en in wezen zelfs een andere diersoort.

Marketing
Ook aan het marketing-aspect wordt de laatste jaren behoorlijk wat aandacht besteed. De Kagera-regio ligt tussen vier grote steden in: Kampala, 300 km bij ons vandaan, Kigali, 450 km bij ons vandaan en Mwanza ligt 12 uur varen bij ons vandaan. De vierde stad is Bujumbura, ongeveer 650 km bij ons vandaan. Dus, eventuele afzet van melkprodukten, zoals de kaas die we momenteel maken en gekoelde melk is mogelijk. Het probleem is dat we moeten zorgen dat onze kostprijs realistisch is en het produkt goedkoop blijft om deze markt te kunnen veroveren.

Van de boer naar de klant...
Het centrale bedrijf heeft niets met de melkdistributie te maken. De huidige 1.500 boeren moeten ieder hun eigen melk verkopen. Dat kan betekenen dat een boer klanten bij de deur heeft, het kan ook betekenen dat hij of zij de melk zelf moet venten. Dat geeft momenteel problemen, omdat er vooral in de eerste concentratiegebieden een overschot aan melk is. Daarom zijn we met de produktie van kaas begonnen in heel ambachtelijke units die 200 liter melk per dag kunnen verwerken. We hebben nu 2 units draaien en we zitten op een produktie van 30 - 40 kg kaas per dag. Op dit moment is daar markt voor.

Het is een Goudse kaas, alhoewel het instrumentarium voor 99% uit lokaal materiaal bestaat. Alleen stremsel en



De Wolff en Schukking op het Centrum Veehouderij in Lelystad. Verlof in Nederland wordt gebruikt om eens goed bij te praten. (foto: De Gooijer)

een paar kleinigheden halen we nog uit Nederland. De rest, zoals vaten en persen, maken we zelf. Dus wat dat betreft kunnen we in de toekomst een derde en vierde unit opzetten.

Verantwoordelijkheid bij de mensen
Al onze activiteiten zijn volledig gebaseerd op een "cost/benefit"-analyse en met bepaalde activiteiten maken we behoorlijk winst. We schatten dat we dit jaar ongeveer 40.000.000 shilling winst maken. Dat moet je door 200 delen, dan kom je op het equivalent in guldens.
Bepaalde activiteiten gaan eventueel over naar boerengroepen, als wij denken dat ze betrouwbaar zijn en voldoende efficiënt.
Kijk, je kunt dergelijke activiteiten bij een overheid onderbrengen, of bij een non-gouvernementele organisatie; voor ons is de managementkwaliteit van een organisatie doorslaggevend, omdat dit meestal de grootste bottleneck is.

De toekomst van het project
Ik denk dat wij, alhoewel we een sectorprogramma voor DGIS zijn, wel een programmatische benadering hebben. Dat houdt in dat je een vrij flexibele approach hebt, waarbij je langzaam in een bepaalde richting schuift. Je zegt: "Momenteel liggen de grootste problemen hier dus dat pak je op". De "heifer breeding unit" is nu financieel volledig zelfstandig en maakt winst. Wat dat betreft heeft Nederland er heel erg weinig bemoeienis meer mee. Dat bedrijf draait uitstekend. Er is een goed management en financieel zijn ze onafhankelijk. Hun enige probleem is de invoer van benodigde medicijnen, waarvoor ze gebruik moeten maken van een importsupportprogramma, ofwel op regionaal ofwel op nationaal niveau. Verder verwacht ik dat het "farmer's training centre" volgend jaar break-even staat. De voorlichtingsdienst zal nog wel tien jaar Nederlandse fondsen nodig hebben, maar na die periode is ook deze sector volledig overdraagbaar. De technische kwaliteit en motivatie van de Tanzaniaanse staf zijn goed, ik mag zelfs zeggen zeer goed.
Ook mijn rol kan de komende jaren uit zijn gespeeld. Ik heb de functie van coördinator. In theorie stelt Nederland de projectmanager verantwoordelijk, in de praktijk is het nog steeds zo dat de boekhouders, accountants, de Ambassade, etcetera, de Nederlandse man verantwoordelijk houden. Hoe we dat in de toekomst gaan doen is nog niet bekend, maar we hebben een steering committee als overkoepelend orgaan; er zijn diverse overlegstructuren en ik denk dat er een voldoende flexible approach is om dat te kunnen overdragen.

Nederland heeft een verplichting
Ik denk dat wat betreft de Nederlandse bemoeienis met de veehouderij in Kagera er nog voldoende werk ligt voor tien tot twintig jaar. Maar dat zal in een totaal andere vorm moeten plaatsvinden, bijvoorbeeld in de bouw van melkfabrieken, slagerijen, stock routes, uitbreiding van ons kredietsysteem.
Het Nederlandse ontwikkelingsbeleid heeft als doelstelling dat men de ar-

Backstopping vanuit Lelystad: het Proefstation voor de Rundveehouderij, Schapenhouderij en Paardenhouderij (foto: De Gooijer)

moede onder lokale boeren wil verminderen. De inkomsten uit de koffieteelt zijn een hele treurige zaak momenteel. Diversificatie is een hele goede oplossing en in principe kan een kwart tot een derde van een huishouding vrij gemakkelijk op de veehouderijbedrijfstak overgaan. Daar ligt behoorlijk wat financieel voordeel. Maar de problemen en investeringsbehoeften zijn over vijf jaar totaal verschillend van nu. Dus, de mogelijkheid tot investeren blijft en ik vind dat we ook een zekere verplichting hebben. Technisch en organisatorisch is het mogelijk om van dat gebied een tweede Friesland en een tweede Texas te maken. Het potentieel ligt daar.

Tot slot...
Het DGIS heeft ons vanaf het begin altijd positief beoordeeld en heeft ons de kans gegeven door te werken. Het is wel zo dat je op tijd je strategie moet aanpassen, en je moet flexibel zijn. Je krijgt namelijk niet altijd de wind van achter. Het is vaak zo in de samenwerking met ambtenaren, zowel in Tanzania als in Den Haag, dat je de wind van voren hebt. Maar we hebben altijd op tijd de juiste beslissingen er door kunnen krijgen en er wordt naar je geluisterd. Wat dat betreft verdient het DGIS een pluim.

Jean de Gooijer

PR te Lelystad verzorgt backstopping Kalidep

Het Proefstation voor de Rundveehouderij, Schapenhouderij en Paardenhouderij (PR) in Lelystad is betrokken bij diverse projecten in het buitenland. Vooral de projecten in Kenia (Naivasha), Tanzania (Tanga en Kagera) en Polen krijgen veel ondersteuning. In Kagera zijn diverse activiteiten ondergebracht in een project: KALIDEP. Het betreft de produktie van kruislingvaarzen op een ranch (met gebruikmaking van sperma uit Nederland), training en begeleiding van de kleine boeren die deze vaarzen krijgen en het opzetten van veehouderijvoorlichtingscentra van waaruit zowel de veterinaire zorg als de voorlichting aan de bedrijven plaatsvindt. Vooral de materiaalvoorziening vroeg op het PR de nodige tijd en aandacht. Zo is ten behoeve van KALIDEP in 1991 voor ruim 1 miljoen gulden aan materiaal aangeschaft. 80% van dit bedrag werd gespendeerd aan medicijnen en vaccins. Ook begeleidt het PR medewerkers van de projecten die voor een cursus naar Nederland komen. In 1992 is het vermelden waard de aanschaf van een aantal gebruikte koeltanks die bestemd zijn voor het vervoer van de in Kagera te veel geproduceerde melk naar Mwanza, 8 tot 9 uur varen naar de andere kant van het Victoriameer.

(Bron: Jaarverslagen Praktijkonderzoek 1991 en 1992 van het Proefstation voor de Rundveehouderij, Schapenhouderij en Paardenhouderij, de Waiboerhoeve en de Regionale Onderzoek Centra)

STUDENTENSTAGES IN DE TROPEN

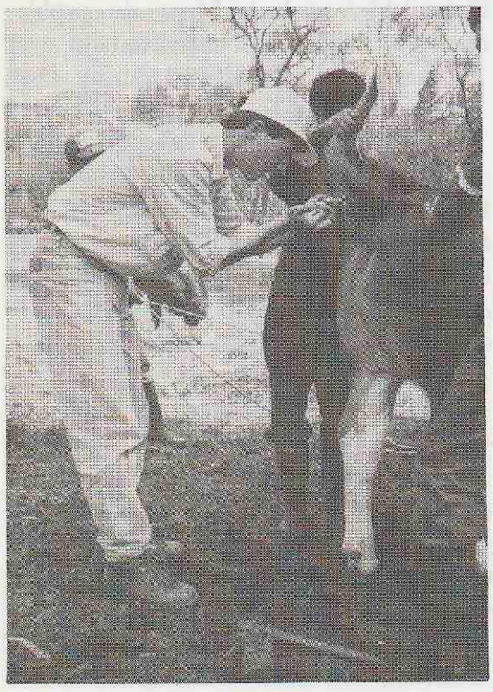
Colombianen: "rare jongens die Hollanders"

Een enkele keer gaan studenten op stage in de tropen zonder de tropencursus in de tweede fase van het veterinair curriculum gevolgd te hebben. Door studieduurverkorting en inperkingen op het gebied van de studiefinanciering (zoals de 27-jaar maatregel die momenteel in voorbereiding is) verwachten studenten aan het eind van hun studie geen inschrijftijd meer over te houden, die ze zouden kunnen gebruiken voor een stage als voorbereiding op een werkkring in de tropen. Sommigen proberen daarom aan het eind van de eerste fase van hun studie, vlak voor het doctoraal examen op stage te gaan. Veel stageplaatsen zijn echter ongeschikt voor studenten zonder praktische ervaring die geen tropencursus gevolgd hebben. Ook Robert ter Horst en Enne Kwant, twee vierdejaarsstudenten, vatten het plan op een scriptie te schrijven op basis van een stage-onderzoek in de tropen. Het bleek niet mee te vallen, maar uiteindelijk vonden zij een stagebegeleider en een stageplaats in Bogotá, de hoofdstad van Colombia. Hieronder volgt het verslag van hun ervaringen.

Voor het vertrek
Na vier jaar met onze neus in de dictaten en boeken en het volgen van biochemiepractica leek een stage in de tropen ons een gepaste afwisseling in ons studentenbestaan. Na een intensieve speurtocht naar een geschikte stageplaats kwamen we uiteindelijk terecht bij drs. J.J. van Amerongen, medewerker bij de vakgroep Bedrijfsdiergeneeskunde en Voortplanting van de Faculteit Diergeneeskunde. Hij bracht ons in contact met Marisa Ortiz, een Colombiaanse dierenarts. Zij had voor ons een stageplaats in Colombia.
Na de nodige voorbereidingen en een financiële ondersteuning door het Bureau Internationale Contacten van de Faculteit, vertrokken wij op 15 februari 1992 vol verwachting naar Santafé de Bogotá D.C., de stad die voor een half jaar onze woonplaats zou worden.

Het land
Colombia is in grootte het vierde land van Latijns-Amerika. Het is gesitueerd in het noord-westen van Zuid-Amerika en heeft als buurlanden: Ecuador, Peru, Brazilië, Venezuela en Panamá. Er wonen ongeveer 35 miljoen mensen (alleen al in Bogotá meer dan 7 miljoen). Het land wordt in vieren gedeeld door drie uitlopers van het Andes-gebergte. Koffie is het belangrijkste (legale) exportprodukt. Colombia heeft een gewelddadige historie en ook nu nog zorgen guerilla, criminaliteit en narcoterrorisme voor de nodige problemen.

De aankomst
Aeropuerto El Dorado ligt op een hoogte van 2700 m, zodat wij happend naar lucht van de hypoxie uit het vliegtuig stapten. Wij waren gewapend met wollen truien en handschoenen en onze koffers zaten vol met laboratorium-



Het nemen van bloedmonsters op de "fincas" was een hele ervaring, o.a. door het contact met de "trabajadores" (foto: Kwant/Ter Horst)

materialen. Onder begeleiding van jeugdige Colombiaantjes in korte broek en T-shirt gingen wij naar onze verblijfplaats, een appartement in de metropool Bogotá.
Wij hebben een half jaar gewoond in deze drukke, fascinerende maar ook gevaarlijke stad. Het centrum verdeelt de stad in twee zeer verschillende delen; het rijke noorden met dure appartementen en luxe winkelcentra waar alles verkrijgbaar is en het zuidelijke deel van Bogotá waar absolute armoede heerst met alle daarmee gepaard gaande excessen.

Droogte

Volgens onze bronnen hadden wij midden in het regenseizoen aan moeten komen, maar helaas heeft het gedurende ons verblijf van een half jaar nauwelijks geregend. De droogte was desastreus voor het gehele land. Omdat de gehele energievoorziening afhankelijk is van waterkrachtcentrales betekende het watertekort een enorme beperking van de capaciteit van deze centrales. De regering greep in door het instellen van de "racionamiento". Dit hield in dat wij het elke dag tussen 16.00 en 21.00 uur in ons appartement zonder elektriciteit moesten stellen, behalve als het Colombiaanse voetbalelftal op TV kwam.
Typisch voor Bogotá is dat er direct een handel ontstond in alles dat licht gaf of elektriciteit opwekte. In de taxi voor het stoplicht werd je aan alle kanten bestormd door "vendadores" die je kaarsen, generatoren en kooktoestelletjes probeerden te verkopen.

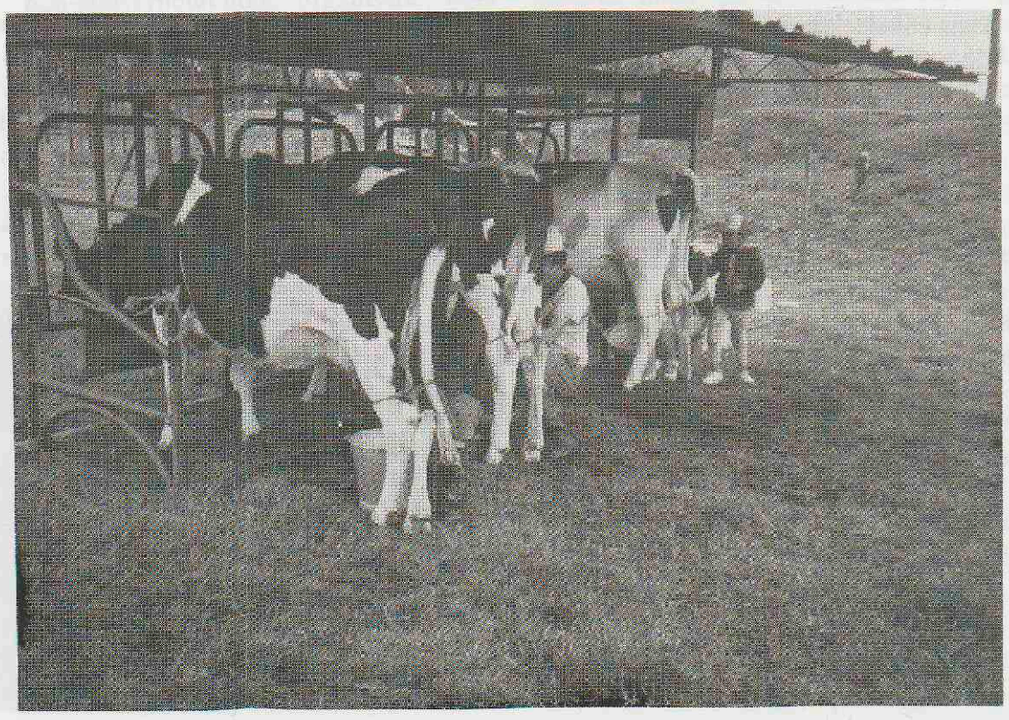
Akkerbouw en veeteelt

Met Colombiaanse dierenartsen bezochten we rundveebedrijven in de Sabana de Bogotá, de hoogvlakte rondom de hoofdstad van Colombia. De bedrijven waren onderling zeer verschillend, bijvoorbeeld voor wat betreft het melken. Op het ene bedrijf kwam een dozijn vrouwen melken en op een ander bedrijf werd er gemolken in een zeer moderne doorloopmelkstal.
De bedrijfsvoering verschilde ook sterk van de Nederlandse situatie. Veelal is de eigenaar een groot-industrieel uit Bogotá die de leiding van het bedrijf in handen van een "mayor domo" geeft. Meestal is deze persoon veearts, zootechnicus of een hoofdarbeider.
De veehouderij in Colombia is sterk gebonden aan de hoogte. In de hogere, koudere streken wordt voornamelijk de intensieve melkveehouderij bedreven (Holstein-Friesian), in de warme laaglanden is de rundveehouderij volledig op vleesproduktie (Zebu) gericht en zeer extensief.
Colombia is een agrarisch land, ook akkerbouw treft men veelvuldig aan. Op de hoogvlakte zie je aardappelteelt en enorme bloemenkassen. Vooral deze laatsten geven een enorme verstoring van de waterhuishouding (in de Sabana wordt het water van ruim 800 meter diepte opgepompt). In de middelhoge gebieden tref je koffie- en bananenplantages aan, terwijl in de lagere regionen suikerriet een belangrijk landbouwprodukt is.

Veld- en laboratoriumwerk

We hadden een trage start, zo konden we pas na anderhalve maand beginnen met het nemen van bloedmonsters. Het "tapwerk" was fantastisch om te doen. Niet alleen vanwege het contact met de vele "trabajadores" -de hele "finca" liep uit om "los Holandeses" te zien- maar ook omdat tijdens de ritten het landschap telkens weer verbazingwekkend gevarieerd was. Wij verzamelden voornamelijk bloedmonsters op de grotere melkveebedrijven.

Na het veldwerk volgde het laboratoriumwerk, dat achteraf gezien zeer interessant was. Via VECOL, een Colombiaanse vaccinproducent, en de "Universidad Nacional" kwamen wij terecht bij het I.C.A. (Instituto Colombiano Agropecuario), waar we fantastisch zijn geholpen. Per test wilden wij 500 sera in anderhalve week tijd onderzoeken. De Colombianen vonden dat astronomische hoeveelheden. Eerst vlogen kreten als: "imposible, estupido, carajo, holandeses!" om onze oren maar na verloop van tijd verstomde dit commentaar. Na ongeveer twee maanden waren alle sera getest op antilichamen tegen het parainfluenza-3 virus (PI-3), en de virussen die bovine virale diarree (BVD), infectieuze bovine rhinotrache-



Op de grotere melkveebedrijven rond Bogotá wordt vaak nog met de hand gemolken (foto: Kwant/ Ter Horst)

itis (IBR) en mond- en klauwzeer (MKZ) veroorzaken.

Testresultaten
Voor het aantonen van de antilichamen tegen het PI-3 virus werd de haemagglutinaticinhibitie-test gebruikt en voor het aantonen van antilichamen tegen zowel het IBR-virus als het BVD-virus ELISA-tests.

PI-3
Als we onze resultaten vergelijken met het meest recente Colombiaanse onderzoek (1983) valt vooral de enorme stijging van dieren met positieve antistoftiters tegen PI-3 op. Jonge dieren hebben vaak geen antistoffen vanwege een gescheiden opfok, maar rond de leeftijd dat contact optrad met oudere dieren werd vaak een titerstijging geconstateerd .

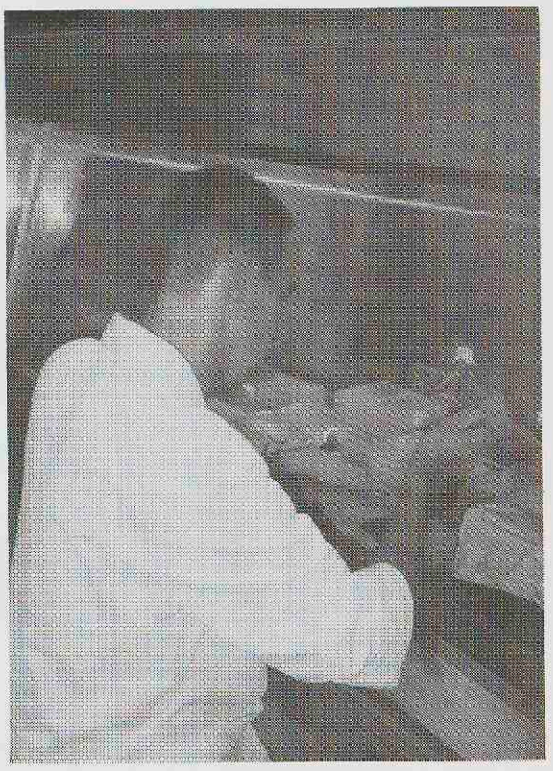
IBR en BVD
Onze resultaten betreffende IBR en BVD komen redelijk overeen met het bovenvermelde onderzoek. Opvallend was dat veel dieren met positieve IBR-titers te vinden waren op twee bedrijven met een onderling nauwe band.
Voor de Colombianen waren de door ons meegenomen ELISA-kits een uitkomst. Zij hadden namelijk grote problemen om hun celcultures vrij van besmetting te krijgen. Deze celcultures werden gebruikt in seroneutralisatietests om de antilichamen tegen IBR en BVD aan te tonen.

Mond en klauwzeer
Ter controle van de halfjaarlijkse vaccinatie tegen MKZ voerden wij een seroneutralisatietest tegen de typen A en O uit. Alle 38 bedrijven waar wij monsters hebben genomen, hadden gevaccineerd. Uit onze resultaten bleek dat praktisch alle onderzochte runderen antistoffen hadden. Alleen sommige kalveren waren onvoldoende beschermd, waarschijnlijk omdat zij nog geen vaccinatie of booster hadden gehad. Volgens ons is er geen reden tot zorg voor wat betreft MKZ-uitbraken in de Sabana de Bogotá. Dit in tegenstelling tot andere minder goed te controleren regio's in Colombia (bijvoorbeeld Los Llanos) waar nog regelmatig uitbraken plaatsvinden.

De toerist uithangen
Gelukkig hadden wij nog voldoende tijd over om de toerist uit te hangen. We zijn in verschillende delen van Colombia geweest. Het vervoer ging grotendeels per bus en taxi en was, afhankelijk van de chauffeur, soms een heel avontuur. We zijn onder andere naar het Caribische gebied geweest waar de "bounty"-stranden, indianendorpen en het oerwoud een grote indruk maakten. Al met al was onze stage een fantastische ervaring en zeer zeker de moeite waard.

Robert ter Horst
Enne Kwant

500 sera testen in anderhalve week was volgens de Colombianen gekkenwerk (foto: Kwant/Ter Horst)



Vacatures Internationale Samenwerking

In deze rubriek worden vacatures opgenomen die door de redactie als mogelijk interessant voor Nederlandse dierenartsen worden aangemerkt. Naast vacatures die zullen worden overgenomen uit: Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RPD Advies / Ministerie van Binnenlandse Zaken) etc., zal er plaats zijn voor personeelsadvertenties. Voor nadere inlichtingen omtrent de geboden functies dient men zich direct tot de instelling of onderneming te wenden.

INTERNATIONAL LABORATORY FOR RESEARCH ON ANIMAL DISEASES (ILRAD)

General information:
ILRAD was established in 1973 in Nairobi, Kenya as one of the research Centres of the Consultative Group on International Agricultural Research (CGIAR), a consortium of donor agencies which now supports 18 centres worldwide. ILRAD has a global mandate to work on the improved control of livestock diseases which seriously limit world food production and are impediments to sustainable agriculture. It applies the best of modern science in pursuit of this goal. ILRAD is a leader in the field of molecular parasitology and its application in vaccine development and has a substantial interest in the genetic basis of resistance to diseases. Presently, its research programme is focused on trypanosomiasis and serious tick borne hemoprotozoan diseases such as theileriosis. ILRAD envisages an expanding range of interests to improve the productivity of livestock in developing nations.
ILRAD occupies a modern complex of research laboratories and supporting units at Kabete, on the outskirts of Nairobi. The Laboratory currently employs approximately 60 scientists and 350 support staff. It is governed by an international Board of Trustees consisting of 12 members.

ILRAD seeks a:

DIRECTOR GENERAL / NAIROBI

Required:
Applicants are expected to have demonstrated capacity for dynamic leadership, innovative research, strategic planning, effective administration, and a comprehensive understanding of animal diseases and their control especially those pertinent to ILRAD's interests. International experience in a developing country is highly desirable. The position requires the ability to interact with international donor agencies, national governments, commercial organizations, and other laboratories in the CGIAR system. Candidates must be familiar with infectious diseases, biotechnology, immunology, molecular biology, genetics, epidemiology, the role of livestock in sustainable farming systems, and methods of technology transfer.

Conditions:
The position becomes available in April of 1994 upon the retirement of the incumbent Director

General and will be for an initial five-year term that is renewable. Salary and other emoluments will be negotiated and will be consistent with similar positions in the CGIAR system.

Application:
Deadline for receipt of applications is February 28, 1993. Applicants should make arrangements for three letters of reference to be sent to the Chair of the Board. For further information contact: Dr. N. Ole Nielsen, Chair, Board of Trustees, ILRAD, c/o Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada N1G 2W1. (Tel. +1.519.823.8800, ext. 4417. telefax: +1.519.837.3230).

INTERCOOPERATION

Swiss Organization for Development and Cooperation specialized in the implementation of development projects in rural areas, is looking for a

CHIEF PROJECT ADVISER / HYDERABAD

for the promotion of animal husbandry and dairy development in one of the bilateral projects in India.

He will act as Chief Project Adviser to the Indian Project Officer and as teamleader to the expatriate staff. Together with his counterparts he will be actively involved in planning, implementing and monitoring of the project policy and its activities.

The Indo-Swiss Project Andhra Pradesh (ISPA) has been operational since 1976 and is implemented by the Department of Animal Husbandry, Andhra Pradesh, in combination with the Andhra Pradesh Dairy Development Cooperative Federation and other governmental and non-governmental bodies. ISPA's main goal is the promotion of cattle breeding, fodder production and dairy development emphasizing at state level to the breeding programme and fodder development and in selected clusters to the promotion of animal husbandry practices through intensive training and extension.

Qualifications:
- An academic degree in agriculture or in a related discipline with good knowledge in animal husbandry and dairy production;
- several years professional experience;
- experience in development co-operation (preferably in Asia);
- Good knowledge of English;
- Minimum age 35 years.

Contract:
Beginning July 1, 1993 or by appointment 2 years contract with possibility to extend.

Duty station:
Hyderabad with frequent travels in the project area (Andhra Pradesh).

Application:
Please send applications to Interco-operation, attn. Felix Bachmann and Eveline Messer, Maulbeerstr. 10; P.O. Box 6724, CH-3001 Bern, Switzerland.

AGENDA 1993-1994

Wageningen, Nederland
13-15 april 1993.
Zodiac Symposium 1993: "The biological basis of sustainable animal production". Georganiseerd ter gelegenheid van het 75-jarig bestaan van de Landbouwuniversiteit Wageningen. De conferentie heeft tot doel: "presenting new and contrasting, if not controversial view-points on various aspects of sustainable animal production in (eco)systems in western and tropical countries". Plaats: Internationaal Agrarisch Centrum. Registratie kosten: Dfl. 400. Informatie: Sectorbureau Dierlijke Produktie, Gabriel L. van Winkel, Postbus 338, 6700 AH Wageningen (Tel.: +31.8370.83911, telefax: +31-.8370.83962).

Edinburgh, Schotland
Maart - juni 1993.
Updating programme for senior tropical veterinarians: Recent advances *plus*. Georganiseerd door: Centre for Tropical Veterinary Medicine, University of Edinburgh. Programma: Specialist training-modules of a duration of 2 days to 2 weeks. Modules are concerned with aspects of: Livestock data-handling and analysis (21 maart - 2 april), An introduction to project management and evaluation (28 maart - 2 april), Livestock extension methods (18-30 april), Current techniques in the laboratory diagnosis of infectious diseases in ruminants. Informatie en registratie: Hamish Macandrew, UnivEd Technologies Ltd., 16 Buccleuch Place, Edinburgh EH8 9LN, Scotland, UK. Tel.: +44.31-.6503476/5, telefax: +44.31.6624061, telex: 727442 unived g.

Edinburgh, Schotland
4-16 april 1993.
Updating courses on: Recent advances and current concepts in tropical veterinary medicine. And: Recent advances and current concepts in sustainable tropical animal production. Georganiseerd door: Centre for Tropical Veterinary Medicine, University of Edinburgh. Informatie en registratie: Hamish Macandrew, UnivEd Technologies Ltd., 16 Buccleuch Place, Edinburgh EH8 9LN, Scotland, UK. Tel.: +44.31.6503476/5, telefax: +44.31.6624061, telex: 727442 univedg.

Cambridge, Verenigd Koninkrijk
8-13 augustus 1993.
14th International Conference of the World Association for the Advancement of Veterinary Parasitology. Thema: "Understanding and control of parasitic diseases of animals". Sub-thema's: Parasite control in (1) sustainable production systems, (2) intensive versus non-intensive systems for ruminants and non-ruminants, (3) nomadic situations and (4) transhumance situations; Genetic resistance to parasitic diseases; Vaccine development; Vector biology and control; Chemotherapy and delivery systems for blood protozoa and helminths; Anthelmintic resistance; Teaching veterinary parasitology. Informatie: Prof. Lord Soulsby, Dep. Clinical Veterinary Medicine, Madingley Road, Cambridge CB3 OES (Telefax.: +44.223.337610).

Wageningen, Nederland
15 augustus - 19 november 1993.
21th International Course on Dairy Farming in Rural Development. Cursus programma: dairy development, farming systems, statistics, economics and agricultural credit, breeding, pasture production, nutrition and feeding, animal health, reproduction and AI, extension and case studies. Cursus kosten: Dfl. 4,000. Sluitingsdatum: 1 mei, 1993. Informatie en registratie: Directeur, Internationaal Agrarisch Centrum (IAC), P.O. Box 88, 6700 AB Wageningen. (Tel.: +31.8370.90111, telefax: +31.8370.18552, telex: 45888 intas nl).

Utrecht, Nederland
24 september 1993.
4th Symposium on "Tropical Animal Health and Production: "Recent developments in veterinary epidemiology". Georganiseerd door het "Committee for the Advancement of Tropical veterinary Science" (CATS) en het Bureau Internationale Contacten van de Faculteit Diergeneeskunde. Programma: zie eerstvolgende nummer van EQUATOR. Plaats: Faculteit Diergeneeskunde, Yalelaan 1, De Uithof, Utrecht. Informatie en registratie: Bureau Internationale Contacten, Postbus 80.163, 3508 TD Utrecht (Tel.: +31-.30.532116, telefax: +31.30.531815).

Bangkok, Thailand
24-29 oktober 1993.
11th International Symposium of World Association of Veterinary Food Hygienists (WAVFH). Georganiseerd door: The Thai Veterinary Medical Association under the Royal Patronage (TVMA). Informatie en registratie: The Symposium Secretariat, Dr. Songkram Luangtongkum, 11th WAVFH Symposium, TVMA, 69/26 Soi Athane Theatre, Phyathai Road, Bangkok 10400 (Tel.: +66.2.252.8773/7066, telefax: +66.2.255.-3910).

Bangkok, Thailand
12-16 juni 1994.
13th International Pig Veterinary Society (IPVS) Congress. Georganiseerd door: Faculty of Veterinary Science, Chulalongkorn University. Informatie en registratie: Dr. Annop Kunavongkrit, Secretary of the 13th IPVS Congress, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330 (Tel.: +66.22520738, telefax +66.-2.2553910).

EQUATOR

VOLUME 5, NO 2 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

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March, 1993

from the editor

This is the first issue in the English language of volume 5: the first lustrum of EQUATOR! The editorial board decided this milestone to be a good occasion to introduce a renewed lay-out. The new logo stresses the equator as a symbol for the line where North and South meet.
Also, there has been a change in the composition of the editorial board. From volume 5 onwards, the foundation DIO does not co-edit EQUATOR any longer. Unfortunately, the foundation, run by volunteers, is not able to provide the necessary manpower and funds to co-produce a newsletter.
However, EQUATOR will remain a medium for information on DIO's activities.

In the discussion on how veterinary science can contribute to the ever growing need for protein in the world, taking into consideration the necessity of a sustainable development, the focus comes more and more on the possibilities modern biotechnology offers.
In this issue of EQUATOR, Robert Paling draws attention to the insight that indigenous breeds of cattle often show a level of resistance to indigenous plagues, like tsetse-transmitted trypanosomiasis in Africa. Trypanosomiasis, possibly the major constraint on livestock and agriculture development in Subsaharan Africa, is estimated to cost over 50 billion dollars annually. Researchers have made huge efforts to unravel the mystery of trypanotolerance. The contributions genetic resistance can make to present and future resource utilisation, are presumably the most realistic, economically and environmentally sound approach for control of parasitic diseases of cattle, sheep and goats.

Another aspect of development cooperation is the question whether research efforts are really concerned with problems that are relevant to local farmers. Merel Langelaar reports her experiences in Benin, where she did a traineeship on the subject of abortions in dwarf goats. She learned a lot about working in a project and about the advantages and difficulties of working in the tropics. In her opinion, the local population often cannot afford the required input of money, work and time. Also, a change in mentality may be required before the introduction of a new method will be generally accepted. She wonders whether it is always worth the effort, because it might not be the farmers' priority after all.

In EQUATORS' regular columns DIO reports on the successful fund raising for a dairy project in Lovedale, India, and the Office for International Cooperation announces the fourth symposium on Tropical Animal Health and Production. This year's theme is "Recent developments in veterinary epidemiology". Activities of interest to our readers may be found in the Calendar, as usual.

Please keep in mind that EQUATOR can be used as a forum for discussion on relevant topics in the frame of livestock development cooperation. Send your contributions to the editors' office.

CAN GENETIC RESISTANCE CONTRIBUTE TO SUSTAINABLE DISEASE CONTROL AND LIVESTOCK PRODUCTION

Diseases impair animal productivity in most parts of Africa. For example, tsetse transmitted trypanosomiasis, which is possibly the major constraint on livestock and agriculture development in Subsaharan Africa, is estimated to cost over 50 billion dollars annually. Control of this disease has been based on vector control and the use of trypanocidal drugs to treat and prevent infection in animals. Both control methods are effective but have proven to be unsustainable due to the high cost of implementation, lack of trained manpower, environmental considerations, and increased incidence of parasite resistance to the drugs available. Moreover, the development of a vaccine against trypanosomiasis is unlikely to be successful in the near future. On the other hand, it has been shown that trypanotolerant cattle, like the N'Dama, can survive and produce in tsetse affected areas without interventions for control.

Many indigenous breeds have special adaptive traits, including disease resistance, climatic tolerance, ability to use poor quality feed and to survive with irregular supplies of feed and water. Their contribution to present and future resource utilisation may be highly significant to sustainable development and may be the most realistic, economic and environmentally sound approach for control of parasitic diseases of cattle, sheep and goats until far into the 21st century.

Biotechnology has created new ways to exploit these unique qualities of indigenous livestock. The identification of the proper genetic markers for resistance to specific livestock diseases will ultimately shorten the selection process; this is necessary to provide the small scale farmer with productive and disease tolerant livestock.

Genetic resistance

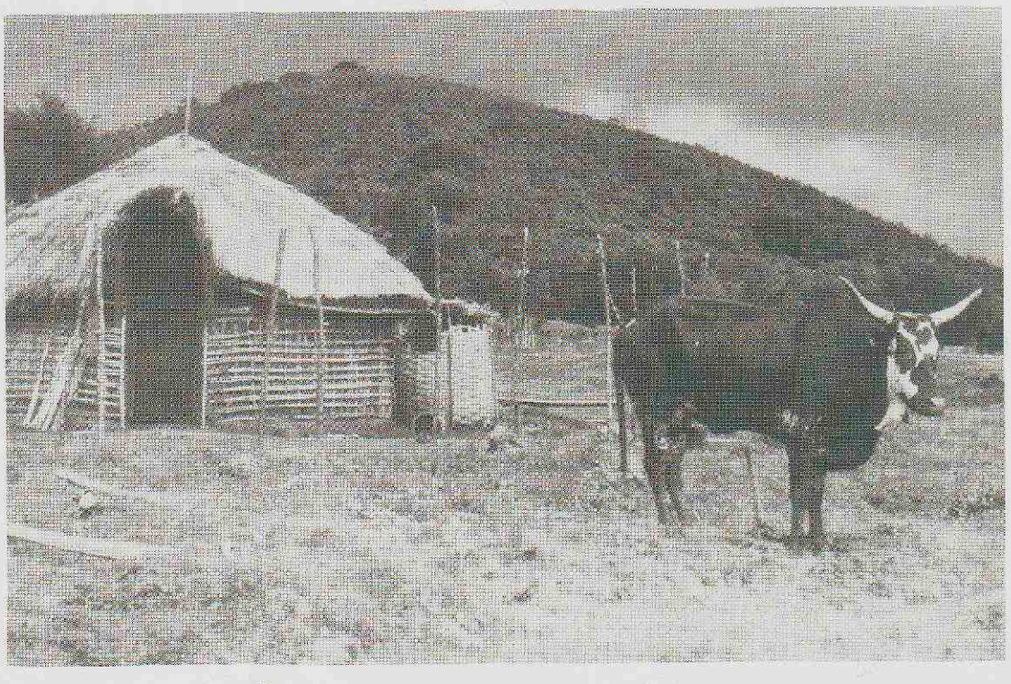
The principal disease determinants, which directly or indirectly influence the frequency of occurrence and distribution of diseases are (1) specific disease agents and their properties, (2) host characteristics and (3) environmental factors. These determinants, together with some of their interrelationships, like mode of transmission (for example by insect vectors), determine the pattern of diseases in animal populations. Host characteristics are for instance species, breed, age and immunological state. Natural resistance to disease, also called innate or genetic resistance, is believed to evolve through the survival of more resistant individuals during long exposure of the species or breed to the parasite. This genetic adaptation of the breed to the parasite forms the basis for an enzootic equilibrium between the parasite and the host population. Different genetic stocks vary in their response to various disease agents. Once resistance to diseases is recognized it should be utilised. However, one must not forget to consider other important aspects before steps are taken to introduce disease resistant stock, like productivity and numbers of stock available, the prevailing farming system and the expected farmers' acceptance, as well as other available control methods and programmes for the control or eradication of the disease.

Resistance to disease of wild ruminants in Africa

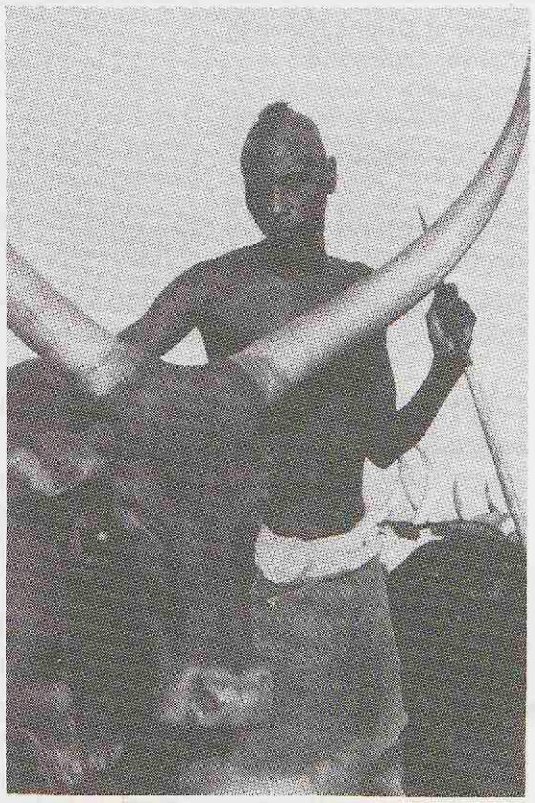
In Africa the highest level of disease resistance is present in wild animals. These animals are indigenous to the continent for up to 2 million years. Resistance to the pathological effects of disease are well documented for East Coast fever (ECF) in the African buffalo and eland, trypanosomiasis in buffalo and waterbuck, and foot-and-mouth disease (FMD) in a variety of species, with much attention given to the buffalo. However, the mechanisms by which these species succeed in resisting the pathological effects are in most cases not well known. Exploitation of the high level of resistance to the major livestock diseases in wild animals is still limited. Game farming and ranching in areas endemic for ECF, FMD or trypanosomiasis is only applied on a modest scale in countries like Zimbabwe, Kenya and South Africa.

Trypanotolerance in cattle

More than 9,000 years ago domestic ruminants, now called the Hamitic



Genetic resistance to ECF forms, under traditional husbandry conditions, the basis for sustainable livestock production (Photo: Baertsoen *)



Between the 13th and 16th century, Nilotic tribes, like the Bahima, introduced Sanga-type cattle from Ethiopia into the area west of Lake Victoria (Photo: Baertsoen *)

Longhorn of taurine origin, were introduced in North Africa. These cattle spread west-ward along the north and west coast of Africa (descended breed the N'Dama) and south-ward up the Nile valley to what to-day are Ethiopia and Kenya. Here, the longhorn cattle are now extinct. The N'Dama are well known for their resistance to trypanosomiasis, which is called trypanotolerance. The potential of trypanotolerance to become an important method for increased production in tsetse areas in West and Central Africa, is now well recognized.

Research on trypanotolerance is supported by international organizations as the Consultative Group on International Agricultural Research (CGIAR) and the Food and Agriculture Organization of the United Nations (FAO). Studies are conducted on a relatively large scale under field and experimental conditions by national and international organizations like the International Laboratory for Research on Animal Diseases (ILRAD), the International Livestock Centre for Africa (ILCA) and the International Trypanotolerance Centre (ITC). For example, scientists at ILRAD in Nairobi studied the characteristics of and the mechanisms involved in trypanotolerance. Moreover, studies have been initiated to map parts of the bovine genome and to identify genetic markers for trypanotolerance genes.

African cattle and East Coast fever

The first zebu cattle arrived in Africa between 2,000 and 1,800 B.C. Subsequently Sanga-type breeds have resulted from a mixture of Zebu and Hamitic Longhorn. Sanga-type animals moved in the period between the 13th and 16th century from the Ethiopian highlands southwards to the area west of Lake Victoria. Here, the Ankole (Sanga: *B. indicus/B. taurus*) breed is now recognized as a relatively stable type of cattle. A total of at least 750,000 Ankole is present in an area covering Rwanda, Burundi and parts of Uganda, Zaire and Tanzania. ECF was first reported in Rwanda in 1919. Later, in 1925, the epidemiology was described and the transmission studied. *Rhipicephalus appendiculatus*, the tick vector, is present in nearly the whole of the country and ECF is endemic.

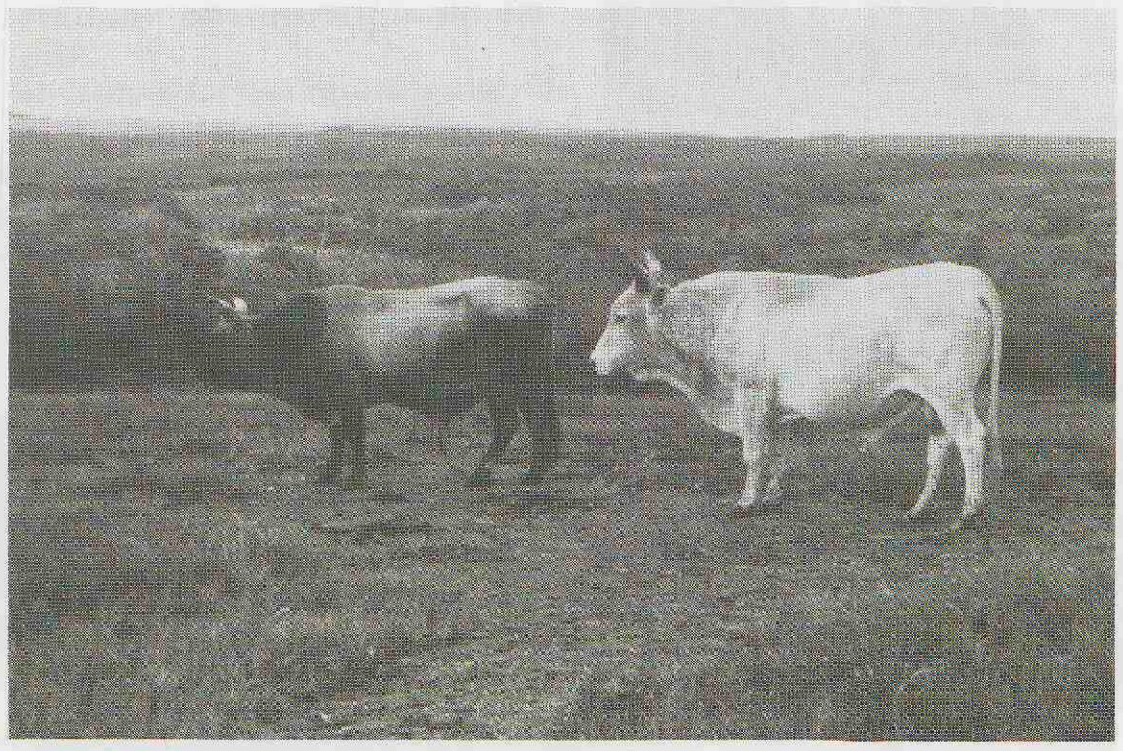
Reports from the late nineteenseventies state that certain types of Zebu cattle in Kenya showed a partial tolerance to *Theileria parva* infections, which probably had a genetic basis. Moreover, it was suggested that cattle from ECF endemic areas may represent a useful genetic pool from which productive and *Theileria* tolerant cattle could be developed.

Theileriosis in Rwanda

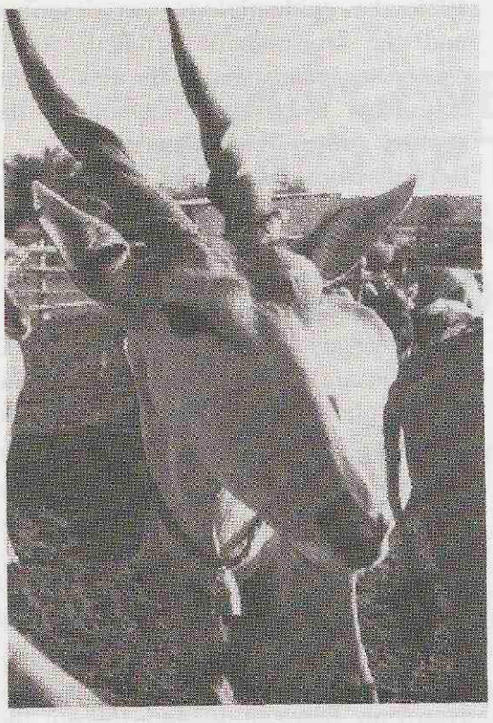
Approximately 130 dipping tanks and 100 spray platforms have been installed for the application of acaracides to control the vector of *T. parva*. However, only between 10 and 15% of the cattle population is regularly dipped or sprayed. Traditionally, Ankole calves remain on small pastures around the houses up to the age of 1 year. Tick infestation on these young animals is very low and no tick control is applied. At an age of approximately 1 year calves will start to follow the adult animals to the communal grazing areas and an increasing number of ticks can be observed. Occasionally, tick control may be applied once the owner observes a disturbing number of ticks on the animals.

Theileriosis in Ankole calves

A study was conducted in an ECF endemic area of Rwanda, whereby 57 calves kept under traditional management conditions were observed for periods up to 16 months. During the period of observation the animals were sampled at monthly intervals. Only four calves died (7%) of which one of ECF (2%). Over 85% of the calves of under 1 month of age had (maternal) antibody to *T. parva*. At the age of 7 months the percentage positive animals had dropped to 17%. At 1 year of age about half the number of animals had antibody and from then on to the age of 19 months this percentage rose sharply to 100%. The exposure of calves to a gradually increasing number of ticks and the resulting ECF challenge, provided a re-enforcement of the genetic tolerance with acquired immunity to



N'Dama cattle imported from Senegal thrive in the humid forest zone of Gabon (Photo: Paling)



Eland at Galana Ranch in Kenya. Exploitation of resistance to diseases in wild animals is still limited (Photo: Paling)

local *T. parva* stocks. It could be concluded that this husbandry system provided the animals with a solid basis for a life-long protection against the disease.

Experimental infections in Ankole cattle

Studies were conducted in Rwanda to determine whether genetically distinct breed groups of Ankole and Ankole x exotic cattle reacted differently to challenge with local stocks of *T. parva*. Local Ankole cattle originating from ECF endemic areas of Rwanda was used for a study. Susceptible experimental animals were derived from farms with no recent history of theileriosis. The study was carried out in a series of experiments for which a total of 105 cattle was used. Seventy-two belonged to the Ankole breed and 33 were crossbred Ankole x Jersey or Ankole x Sahiwal. *Theileria parva* stocks, isolated in Rwanda were used to infect the cattle. The analysis of the observations provided the following results. Disease, followed by spontaneous recovery, was observed in 49 of the 72 Ankole cattle (68%) after infection with *T. parva*; the other 23 animals (32%) died of ECF. In contrast 21 of 33 infected crossbred cattle (64%) died of ECF. Immunization of Ankole could be realized by infecting the animals with defined low doses of *T. parva* sporozoites of local stocks without the need for accompanying treatment. It was concluded that the partial *Theileria* tolerance of the Ankole is genetic.

Control of ECF in Rwanda: maintain endemic stability

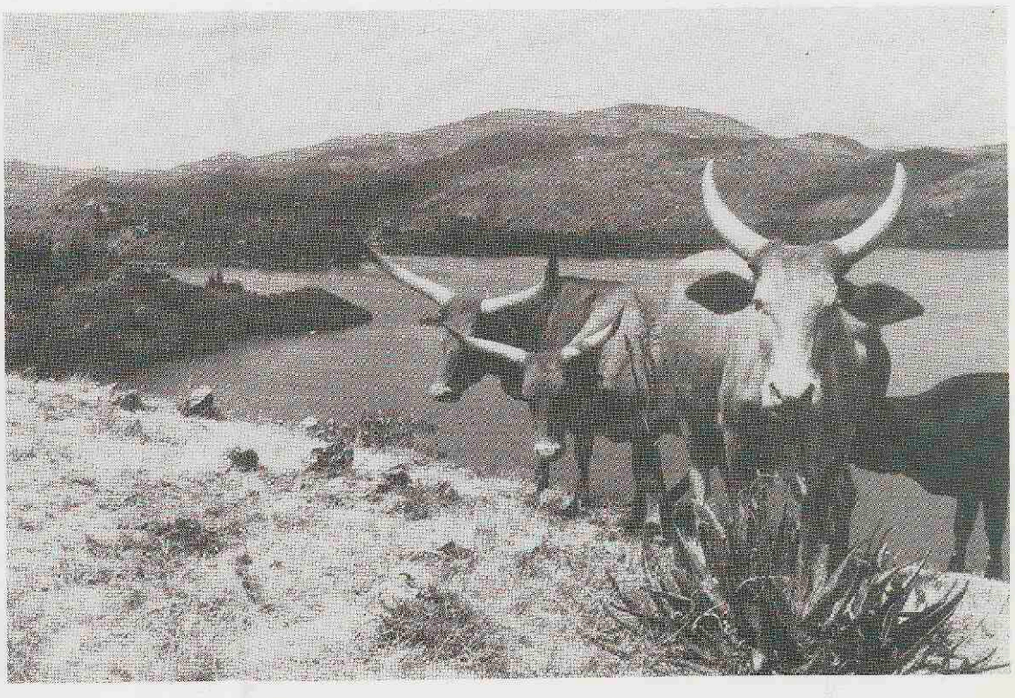
From these studies in Rwanda it can be concluded that the exposure of the Ankole cattle to ECF during 4-7 centuries has resulted in a selection of animals with a certain level of natural resistance, which forms the basis for an enzootic equilibrium. This genetic resistance to ECF is exploited through traditional livestock practices in a way that calf mortality due to ECF is below 5% and tick control by acaracide treatment of cattle is usually unnecessary. As such, genetic resistance is under these traditional conditions the basis for ECF control and a sustainable livestock production system. Of course the lasting presence of the enzootic equilibrium is a prerequisite for the success of this production system; one cannot and should not endeavour to eradicate the disease. However, the introduction of susceptible adult upgraded pure and crossbred Ankole cattle, that has raised under tick-free conditions on breeding stations, into ECF endemic areas requires a certain form of ECF control. Immunization of Ankole can be realized by infecting the animals with defined low doses of *T. parva* sporozoites; crossbred animals require drug treatment following the infection.

Conclusion: more research is required

One may assume that the process of selection towards genetic resistance has also taken place in other breeds or breed groups of cattle towards other endemic diseases. Reports of resistance of cattle, goats or sheep to anaplasmosis, babesiosis, heartwater, helminthiasis and streptothricosis can be found in the literature. Especially investigation of the immune responses following infection can provide indications of the mechanism of resistance. Studies should be initiated to identify genetic markers to clarify the relationship between genetic variation at the molecular level and phenotypic variation in disease resistance. It is envisaged that in the next decade genetic improvement can be achieved by applying marker assisted selection and transfer of "disease tolerance genes" to other, often more productive, breeds. Large projects have been designed to study and exploit the trypanotolerance of N'Dama cattle. Time has come to pay attention to genetic resistance to other diseases and of other cattle breeds and livestock species. This approach may well offer an important contribution to sustainable disease control and livestock production until far into the 21st century.

R.W. Paling

* Source: Au Rwanda. La vie quotidienne au pays du Nil Rouge. Omer Marchal, Editions Didier Hatier, 1987, Bruxelles



Ankole cattle, a Sanga-type breed, originate from a mixture of Zebu and Hamitic Longhorn cattle (Photo: Baertsoen *)

Further reading

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DIO COMMUNICATIONS

Local dairy development plan for the people of Lovedale and surroundings, India

Introduction

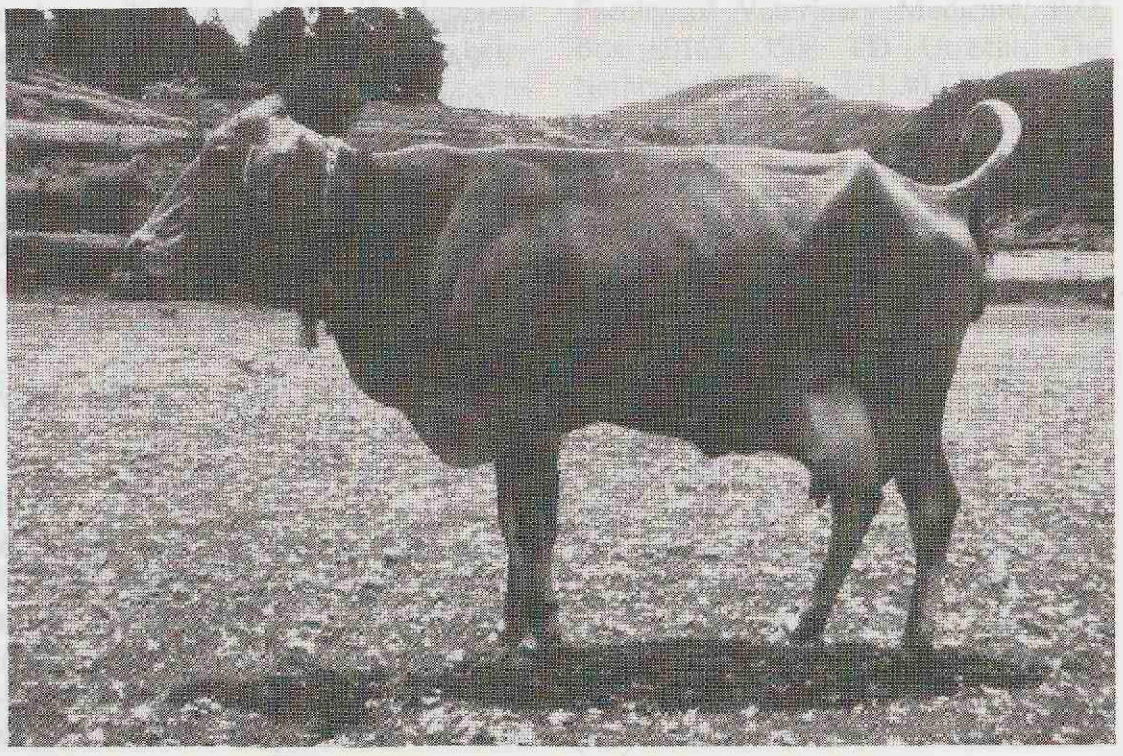
As reported in DIO Communications in EQUATOR 6 of November 1992, the Foundation DIO has adopted the "local dairy development plan" after a feasibility study in 1991. DIO supports this project by providing backstopping from the Netherlands and by fund raising. A third task is to inform veterinarians about the veterinary infrastructure in this part of India.

Veterinary infrastructure in the Nilgiris

More than 15 veterinarians, employed by the government, work at various places in the Nilgiris District. There is no veterinary hospital or pharmacy in Lovedale. Emergency services and weekly routine service are provided by veterinarians who work for the milk factory at Lovedale. Other veterinarians work for rural development projects at the village unions in Ooty, Coonoor, Gudalur and Kotagiri. One private veterinary surgeon works at a stud farm in Lovedale. Farmers can obtain free veterinary service from the milk factory under the condition that they sell their milk to the plant. The plant also organises foot-and- mouth disease vaccinations, while rinderpest vaccinations are organised by a government team. The most common causes of death are extreme weather conditions, parasite infestations and hill haematuria. Artificial insemination is done by the veterinarians of the milk factory.

Initial phase of the project

The project proposal aims at improving the income and the standard of living of local farmers in Lovedale and surroundings. The initial phase of the project consists of the construction of a cowshed and the purchase of crossbred cows and necessary materials for the "Sunflower Maghaleer Mandram". This organisation, which is mainly led by women, is registered by the Indian government. The participants in the project earn an income from the milk yield, which will be partly re-invested in the project. The project will be self-supporting in 1996.



Jersey x Zebu crossbred cows are being introduced at the dairy development project in Lovedale (photo: Vonk)

The introduction of higher yielding cows requires an input of supplementary feeding (photo: Vonk)

Contacts in India
In 1991 contacts were made with representatives from the 'Sunflower Maghaleer Mandram', with the Nilgiris District Co-op Milk Producers' Union and with representatives of the Government District Livestock Farm. This research station is mainly involved in research using Holstein-Friesian x zebu crossbreds and includes an artificial insemination unit. The most interesting visit was made to the Nucleus Jersey Stud Farm. All these facilities were well equipped and their representatives were willing to assist in the proposed project.

Backstopping
An expert consulted by DIO evaluated the drawing of the cowshed. Furthermore it was decided to work with the Jersey x zebu crossbred, because in India they have a better natural resistance against bovine theileriosis than Holstein crossbreds. Another advantage of the Jersey crossbred is the higher fat percentage in the milk. The farmers are paid according to this fat percentage.

Funding
DIO made an estimation of the costs of a cowshed, the purchase of 25 cows, feeding, management, veterinary care, tools and materials, maintenance, insurance, transport and raising of the calves. The budget also includes costs for evaluation visits to India, overhead and public relations. The total budget comes to *f* 61.000,-. The expenditure of the Indian NGO will be controlled by an Indian government auditor.
The following organisations are financially involved: The Province of Utrecht, Foundation 'Steun door Rabobanken', Third World Group Soest, Umodja Wereldwinkel, Foundation Emmaus and the Foundation DIO.

Epilogue
DIO aims at being a connection between animal husbandry specialists and veterinarians in developing countries, and technical assistance organisations and veterinarians in developed countries. The local dairy development plan for the people of Lovedale and surroundings is an example of this approach.

John Vonk

BIC NEWS

THIRD INTERNATIONAL COURSE "INTRODUCTION TO HERD HEALTH AND EPIDEMIOLOGY"

After 2 succesfully completed courses, the third international course "Introduction to herd health and epidemiology" will be organized from 8 October to 26 November 1993 in the Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. The Office for International Cooperation will organize this 7-week post-academic course.

Subjects
The course is directed towards dairy cattle and dairy cattle husbandry.
The following subjects will be given attention:

* Introduction to herd health and the VAMPP-programme for fertility control of dairy cattle;
* introduction to veterinary epidemiology;
* fertility analysis and aspects of reproduction like gynaecology, animal husbandry, artificial insemination and embryo transfer;
* claw disorders;
* mastitis: diagnosis, epidemiology, therapy and prevention;
* calf rearing and nutrition.

Besides attending lectures, practicals and demonstrations, participants will visit a number of dairy farms in the service area of the ambulatory clinic of the Faculty and they will join excursions to veterinary institutes and/or health services. Also, the touristic interest of the participants will not be forgotten. The course includes 2 days of excursions to interesting sites in the Netherlands.
Following this course, the possibility exists to follow more specialized training on an individual basis.

Course fee
The course fee is Dfl. 7.500,-, excluding the costs for travel, subsistence, lodging and medical insurance.

Information and application
The coordinating bureau requires a good knowledge of the level of education and the working conditions of the candidates for selecting the appropriate participants for the course. Therefore, applicants have to send a letter with a detailed curriculum vitae, stressing academic and/or professional merits. Fur-

thermore, a certified statement of approval to participate in the course from responsible superiors and a declaration by the granting authority should be included. Closing date for registration is 1 August, 1993.

For more information and application, please contact the Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht, the Netherlands, tel: +3130-532116, telefax: +3130-531815.

4th INTERNATIONAL SYMPOSIUM "TROPICAL ANIMAL HEALTH AND PRODUCTION" AT UTRECHT UNIVERSITY

"Recent developments in veterinary epidemiology"; 24 September, 1993.

CATS

On October 19, 1989, ten members of the academic staff of the Faculty of Veterinary Medicine established the "Committee for the Advancement of Tropical veterinary Science" (CATS). The members of CATS are all scientists involved in research and teaching on subjects related to livestock in the tropics. The main objective of CATS is the perpetuation and promotion of research and education relevant to the tropics by the Faculty of Veterinary Medicine.

Symposium "Tropical Animal Health and Production"

CATS, together with the Office for International Cooperation of the Faculty organises a yearly international symposium on "Tropical Animal Health and Production". Research achievements and activities of the Faculty, with relevance to the tropics, as well as research projects which are a collaborative effort of the Faculty and scientists in developing countries, are presented. Moreover, key speakers are invited to present recent developments in a relevant area of research. The aim of the symposium is to inform scientists, policy-makers and members of development organizations of the research activities and potential of the Faculty of Veterinary Medicine, Utrecht University and to stimulate research relevant to the tropics by scientists of the Faculty.

4th Symposium

The organizing committee of the 4th symposium on "Tropical Animal Health and Production" has selected as general theme: "Recent developments in veterinary epidemiology". The symposium will be held on **24 September, 1993** in Utrecht. Models for the epidemiology of many human and animal diseases have been developed and are for example applied to predict consequences of the introduction of control methods and new drugs and of the development of drug resistance. Models can be helpful in analyzing major disease constraints in livestock production and in the planning of disease control programmes following outbreaks and epidemics. The symposium will pay attention to these approaches and discuss their relevance for the livestock sector in the tropics.

The programme

The symposium will pay attention to the various epidemiological models that can be applied for livestock diseases in the tropics. The impact and relevance of disease surveys, as conducted in many countries over the last years, will be reviewed. Invited speakers present the epidemiology and control of several major diseases in tropical areas; trypanosomiasis and foot-and-mouth disease will be given attention. The application of epidemiological models will be highlighted by presenting results on mastitis control and analyzing risk factors in calf rearing on dairy farms in Costa Rica. An analysis of the complex epidemiological situation of rabies in Zimbabwe, involving wild and domestic animals, will be presented. The epidemiology of poultry diseases under small scale farming conditions in the Philippines will also be given attention.

Participation

Those interested in the programme are welcome to participate in the symposium. A registration form will be forwarded soon to all subscribers of EQUATOR and can also be obtained from the editors' office. Registration is free. Participants will receive a symposium book, including the programme and extended abstracts of all presentations. For more information please contact: Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80163, 3508 TD Utrecht, The Netherlands (Tel.: +31.30.532116, telefax: +31.30.531815).

RECENT PUBLICATIONS (11)

The section RECENT PUBLICATIONS is included in the March, July and November issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in the Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientists working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office (Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht, The Netherlands).

ANIMAL HEALTH

Obwolo, M.J. and Zwart, P. (1992). Prevalence of coccidiosis in reared Nile crocodiles (*Crocodylus niloticus*) on a farm in Zimbabwe. Zimbabwe veterinary Journal 23: 73-76.

HELMINTHIASIS

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TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

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VETERINARY TRAINEESHIPS IN THE TROPICS

Abortions in goats in Zouzouvou, Benin

Some veterinary students have a keen interest in the tropics. If they also have some time to spare during the first phase of the curriculum at the Faculty of Veterinary Medicine of Utrecht University they may decide to broaden their education by following a course at another institution. Merel Langelaar, fourth year student and editor of EQUATOR went to the "Institut d'élevage et de médecine vétérinaire tropicale" (I.E.M.V.T.) in Maisons-Alfort, France, to participate in the course on tropical animal production. The course has a duration of one year and includes a traineeship in a tropical country. Merel went to Benin, to perform a study in a project of the Benin Ministry of Rural Development, which receives technical assistance of the Royal Institute for the Tropics of the Netherlands.

The country and the project area

Benin is a West-African country, situated between Togo and Nigeria. The official language is French, but many different African languages are spoken. There are about five million inhabitants, most of them work in the agricultural sector.

The country has several climatic zones, varying from semi-arid to humid, each with its distinct ecology.

I worked in Zouzouvou, a little village in the south-west of Benin, in the department of Mono, on the Adja plateau. In this region the rain forest has been replaced completely by cultivated areas. Overpopulation and degredation of the soil are the biggest problems in this area. The main agricultural products are: cotton, maize, palm oil, cassava, niébé, groundnuts, tomato and red pepper.

Most farmers keep some livestock, generally in a rather unorganized way. Eighty percent of them keeps one or more goats. These goats are West African dwarf goats, a trypanotolerant breed. The goats are kept for meat and for religious ceremonies.

The project

The project is called "Projet de Recherche Appliquée en Milieu Réel", which means that the technical assistance workers collaborate closely with the farmers. In a certain area the project

Many local agricultural products like tomatoes and peppers can be found on market places in the south west of Benin (photo: Langelaar)

staff investigates the specific problems, and subsequently tries to find solutions for them. Possible solutions are tested by volunteers among the farmers. Only when these volunteers accept the new approach and are able to work with it, the modified approach will be propagated to other farmers. This method may seem quite logical, but only a few projects use it consequently. Of course, this has also some disadvantages: every solution to a problem is unique because it is adapted to the local circumstances. Therefore it is difficult to implement the results of research in another place and at another time. That is why opponents regard this approach as not very scientific. It is also frustrating for the staff that problems are not always recognized as a problem by the farmers. For example, in the early beginning of the project in Zouzouvou the maize yield was quite low. The project workers proposed to grow another variety of maize, which would yield a better crop. The farmers tried this variety but did not accept it because they did not like the taste of it. The low yield was obviously not their biggest problem.

The project is composed of Beninese and Dutch staff, working on socio-economical issues, animal production and crop production. The "agents de village" are very important in this project because they are the link between the project staff and the farmer. These agents live in the village and speak both French and the local language. They discuss the tests with the farmers, give information to the farmers and translate everything, in a literal and figurative way of speaking, from staff to farmers and vice versa.

The study

My task in the project was to do some research on the high rate (20%) of abortion in pregnant goats in Zouzouvou. In other villages where the project is active this percentage was significantly lower (3 and 5%).

Before my departure to Benin, I studied some literature on possible causes of abortion. I found out that I would never find the one and only cause, because abortion is a multifactorial symptom with many possible infectious and non-infectious causes.

Upon my arrival in Benin I learned that there is hardly any information about the diseases of livestock in the region.

People try to control the most common causes of death and illness in goats, which are mange, "peste des petits ruminants" (PPR) and diarrhea, but there is no information on other diseases. This absence of veterinary infrastructure is not so amazing as it may seem, because livestock keeping is not the first occupation of the farmer. The farmers work hard on the land all day; most women keep some animals, just to have an extra income.

To learn more about the way goats are kept in the village, I started an inquiry. With a girl from the village as my personal interpreter, I crossed the whole village and asked the goat keepers questions about animal feeding, animal health, circumstances of the abortions, etcetera.

In the library of the Faculty of Agricultural Science in Cotonou I continued my study of the literature.

To have at least an idea of which diseases may have caused the abortions, I took some bloodsamples which were tested for toxoplasmosis, brucellosis and chlamydiosis.

Results

On the basis of the literature and the results of the inquiry, I concluded that the most important cause of the abortions was probably non-infectious. Especially poor feeding of the animals may have resulted in protein and mineral deficiency. The provision of salt blocks and proper feeding might prevent abortions in the dwarf goats in the future.

I realize that these recommendations are far more easy to give than to carry out. I consider the abortions not as an isolated problem but as a signal of a more structural problem in the keeping of goats in Zouzouvou. Therefore, the whole production system should be analysed and may need to be adapted. This requires an input of money, work and time, which are all very scarce. Also, a change in mentality may be needed, and that could be the biggest problem. I wonder if it is worth the effort, because it might not be the farmers' priority.

A personal note

The months I spent in Benin were of great value to me. I learned a lot about working in a project and about the advantages and difficulties of working in the tropics.

Also, I got the opportunity to participate in the congress on goat production in Ile Ife, Nigeria, where I could visit the West African Dwarf Goat Project and meet a lot of people, all occupied with these little animals.

Last, but certainly not least, I met a lot of very nice and kind people, such as the inhabitants of Zouzouvou, the people who work in the project and most of all my host family.

Merel Langelaar

VACANCIES INTERNATIONAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RDP Advies/ Ministry of Internal Affairs) etc., there will be room for personnel advertisements. For further information one is requested to apply directly to the institution or company.

CENTRE DE COOPERATION INTERNATIONALE EN RECHERCHE AGRONOMIQUE POUR LE DEVELOPPEMENT - DEPARTEMENT ELEVAGE ET MEDECINE VETERINAIRE (CIRAD-EMVT)

Information générale:
Le CIRAD est un organisme scientifique spécialisé en agriculture des régions tropicales et subtropicales. Sous la forme d'un établissement public à caractère industriel et commercial, il est né en 1984 de la fusion d'instituts de recherche en sciences agronomiques, vétérinaires, forestières et agro-alimentaires des régions chaudes. Le CIRAD-EMVT est l'héritier d'une longue tradition avec une triple mission: enseignement et formation; recherche et développement; documentation. Au cours des années 50, l'IEMVT a créé des stations de recherche et des laboratoires pour la diagnostic et la production de vaccins principalement en Afrique. Aujourd'hui le CIRAD-EMVT comprend 190 agents (dont 65 hors de France métropolitaine), dont 95 chercheurs et ingénieurs (44 hors de France métropolitaine). Les agents en poste outre-mer sont répartis dans une vingtaine de pays d'Afrique, d'Asie et d'Amérique du Sud et dans les DOM-TOM. Son budget est environ 92 millions de francs français. Les activités du CIRAD-EMVT sont organisés en deux divisions de recherche:

- Productions animales: ressources alimentaires; ressources animales; systèmes de production; aquaculture et pêches continentales
- Santé animale: pathologie infectieuse; pathologie parasitaire; écopathologie.

Toutes les activités de recherche se prolongent par des travaux d'étude et de développement menés seuls ou en collaborations avec des organismes français ou étrangers.

A CIRAD-EMVT l' emploi est vacant du:

DIRECTEUR DE DEPARTEMENT DE L'IEMVT / MAISONS-ALFORT - FRANCE

Responsabilités:
Le directeur du CIRAD-EMVT est nommé par le directeur général du CIRAD, à l'issue d'une procédure de sélection menée par un comité de sélection ad hoc.
Dans le cadre de la politique généneral du CIRAD, et par délégation du directeur général, il assure la direction scientifique, administrative et financière du département; à ce titre, il est chargé de proposer la politique en élevage et en médecine vétérinaire du CIRAD, d'en diriger les programmes de recherche, de formation et de développement, de représenter le département élevage et médecine vétérinaire du CIRAD en France et à l'étranger, d'execer l'autorité sur le personnel du CIRAD-EMVT et d'en nommer les responsables, de gérer le CIRAD-EMVT dans le cadre des règles communes administrative et financières internes à l'établissement public, d'en assurer l'équilibre financier en recherchant et en contractant les ressources propres nécessaires à cet équilibre (il est ordonnateur secondair).

Qualifications requises:

- Expérience démontrée dans la direction et la gestion d'une institution ou d'un project de recherche. Une attention particulière sera apportée aux références relatives à la gestion des ressources humaines et à la capacité de gérer financièrement une entreprise ayant une forte proportion de ressources contractuelles.
- Experience démontrée de la coopération internationale, notamment avec les pays du Sud.
- Bonne connaissance de la problèmatique des productions animales et de la santé animale dans le monde tropical et de la recherche s'y rapportant.
- Compétences et qualités personnelles largement reconnues et respectées dans la communauté scientifique et dans le domaine des productions et de la santé animale. Capacité à inspirer le sens du devoir, l'appartenance à un groupe, l'adhésion à un projet.
- Compétence et/ou formation manageriale et commerciales suffisantes.
- Grande ouverture, clairvoyance et originalité d'esprit.
- Aptitude à communiquer de manière claire, succincte et effective à tous les niveaux, dont celui des responsables des productions et de la santé animales nationaux et internationaux.
- Capacité à entreprendre de nombreux déplacements, en particulier dans les pays étrangers tropicaux.
- Très bonne capacité de s'exprimer en français et en anglais. La connaissance de l'espagnol constitue un avantage.

Conditions:
La durée du mandat du directeur du CIRAD-EMVT est de trois ans. Ce mandat, après évaluation, est renouvelable une fois. La rémunération brute de référence est de 380.000 francs français par an. Elle peut varier notamment à la hausse en fonction des qualifications de son titulaire et de son âge. Cette rémunération est imposable. Cette fonctionsera à exercer d'abord à Maison-Alfort puis, fin 1994, à Montpellier. L'emploi est vacant en septembre 1993.

Demande d'emploi:
Les interessés peuvent s'adresser (avec un curriculum vitae et trois noms de personnes de références) au Monsieur Pierre Dubreuil, Comité de sélection du Directeur du CIRAD-EMVT, 42, Rue Scheffer, 75116 Paris, France. (Télécopie +33.1.47043185). La date limite du dépôt des candidatures est fixée au 1er mai 1993.

REPEATED CALL FOR CANDIDATES

DIRECTORAAT GENERAAL INTERNATIONALE SAMENWERKING (DGIS)

Het DGIS van het Ministerie van Buitenlandse Zaken heeft een vacature voor een suppletie-deskundige bij de University of Zimbabwe.

Background:
The Faculty of Veterinary Science at the University of Zimbabwe is the regional training centre for veterinarians, developed with funds provided by the European Community. Students are accepted into the Faculty from SADCC countries to train as veterinarians who will work in their country of origin. The majority of graduates go into government service as private practices tend to be fully staffed and it is beyond the means of most graduates to become private practitioners. At the Department of Clinical Veterinary Studies there is a vacancy for a:

LECTURER VETERINARY SCIENCE / HARARE - ZIMBABWE

Large Animal Medicine; Duration: 2 years.

(Suppletion expert, Post.nr.: 92/137/ZIM/S)

Duties:
- To assist with under-graduate teaching of large animal medicine and herd health in conjunction with clinicians in the Department of Clinical Veterinary Studies.
- To assist with the operation of the ambulatory andh herd health services of the Veterinary Teaching Hospital by using their expertise to recruit more clients and thereby to improve the quality of the undergraduates hands-on practical training.
- To establish Masters in Veterinary Science training programmes for veterinarians from the SADDC region and to initiate such training programmes.
- To assist clinicians in the Department with the training of residents.

Qualifications and experiences:
- A basic veterinary degree with postgraduate qualifications in large animal medicine.
- Herd health or tropical veterinary medicine.
- Extensive clinical experience with livestock, especially beef and dairy cattle (5-10 years), preferably in a tropical environment.

Information and application:
Information can be obtained from Mrs. G. Vennik (Tel.: +31.70.3485708) or Mrs. J. de Graaf (Tel.: +31.70.-3485299). Applications in writing, quoting the vacancy nunber, should be directed to: Ministeric van Buitenlandse Zaken, Directoraat Generaal Internationale Samenwerking (DGIS/APO/PE), Postbus 20061, 2500 EB 's-Gravenhage, The Netherlands (Telefax: +31.70.3485305; telex: 31326).

(Overgenomen uit Vacatureblad DGIS, nr. 4, 26 februari 1993).

CENTRAL VETERINARY RESEARCH LABORATORY-DUBAI

The Central Veterinary Research Laboratory has a vacancy for a:

VETERINARY SURGEON / DUBAI - UNITED ARAB EMIRATES

Qualifications:
Veterinarian with a postgraduate degree in veterinary histopathology and clinical pathology.

Application:
Please contact CVRL, P.O. Box 597, Dubai. (Telefax: +971.4.368638).

(Announcement taken from The veterinary Record 132, nr.9 of 27 february, 1993).

UNIVERSITY OF ZIMBABWE

Applications are invited for the following posts:

(SENIOR) RESEARCH FELLOWSHIPS
RESEARCH ASSOCIATE PROFESSORSHIPS / HARARE- ZIMBABWE

Department of Clinical Veterinary Studies

Duties:
The successful candidate will participate in on-going departmental research with particular emphasis on one of the following subjects: comparative oncology, foot-and-mouth disease serology, tick-borne diseases, reproductive productivity and epidemiology of diseases of dairy cattle.

Qualifications:
The post is tenable for one year in the first instance. Applicants should possess either a good first degree in life sciences or a Veterinary degree. A postgraduate qualification would be an advantage.

Department of Paraclinical Veterinary Studies

Duties:
The successful candidate will take charge of on-going research projects on epidemiology and immunology of trichostrongylids in cattle under different systems of management.

Qualifications:
The post is tenable for one year. Applicants should possess a good Veterinary degree or a good BSc degree in Zoology or Biological Sciences majoring in parasitology/immunology plus postgraduate experience in working on nematodes of farm animals.

Conditions;
Salary scales (per annum): Lecturer Z$ 62,724 - Z$ 67,944; Senior Lecturer Z$ 71,376 - Z$ 75,768; Associate Professor Z$ 78,756 - Z$ 81,984. Qualified veterinarians receive a 50% retention allowance. Both permanent and short-term contacts are offered. Persons who are not Zimbabwean citizens may be appointed only on a short-term contract basis for an initial period of two years. Short-term contracts may be extended.

Application and information:
Six copies of applications quoting ref. ASA/3/2/93 and giving full personal particulars which should include full name, place and date of birth, qualifications, employment and experience, present salary, date of availability, telephone number and names and addresses of three referees should be addressed to the Director, Appointments and Personnel, University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe (Telex 26580

UNIVZ ZW, telefax: +263.4.732828). Applicants from outside Zimbabwe may obtain further particulars from Mrs. M.F. Gwata, Deputy Registrar (Administration), Appointments and Personnel Office, University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe.
Closing date: 5 April, 1993.

(Announcement taken from The Veterinary Record 132, nr.10 of 6 March, 1993).

CALENDAR 1993-1994

Wageningen, The Netherlands
13-15 April, 1993.
Zodiac Symposium 1993: "The biological basis of sustainable animal production" held on the occasion of the 75th Anniversary of the Wageningen Agricultural University. The conference aims at presenting new and contrasting, if not controversial view-points on various aspects of sustainable animal production in (eco)systems in western and tropical countries. Location: International Agricultural Centre. Registration fee: Dfl. 400. Information: Sectorbureau Animal Production, Gabriel L. van Winkel, P.O. Box 338, 6700 AH Wageningen (Tel.: +31.8370.83911, telefax: +31.8370.83962).

Cambridge, United Kingdom
8-13 August, 1993.
14th International conference of the world association for the advancement of veterinary parasitology. Theme: "Understanding and control of parasitic diseases of animals". Sub-themes: Parasite control in (1) Sustainable production systems, (2) Intensive versus non-intensive systems for ruminants and non-ruminants, (3) Nomadic situations and (4) Transhumance situations; Genetic resistance to parasitic diseases; Vaccine development; Vector biology and control; Chemotherapy and delivery systems for blood protozoa and helminths; Anthelmintic resistance; Teaching veterinary parasitology. Information: Prof. Lord Soulsby, Dep. Clinical Veterinary Medicine, Madingley Road, Cambridge CB3 OES (Telefax.: +44.223.337610).

Wageningen, The Netherlands
15 August - 19 November, 1993.
21th International course on dairy farming in rural development. Course programme: Dairy development, farming systems, statistics, economics and agricultural credit, breeding, pasture production, nutrition and feeding, animal health, reproduction and AI, extension and case studies. Course fee: Dfl. 4,000.Closing date: 1 May, 1993. Information and registration: Director, International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen. Tel.: +31.8370.90111, telefax: +31.8370.18552,telex: 45888 intas nl.

Oenkerk, The Netherlands
30 August - 8 October, 1993.
International course on modern dairy farm management. Organized by: Dairy Training Centre Friesland. Programme: Milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics; Dutch dairy industry. Course fee including board and lodging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.5103.1562, telefax: +31.5103.1628.

Kruger National Park, South Africa
14-18 September, 1993.
Symposium on: "The capture, care and management of threatened mammels". Organized by: The World Association of Wildlife Veterinarians and the Wildlife Group of the South African Veterinary Association. Information: Dr. Ian Epsie, 209, Clara Rerea, 18 Clara Street, Pretoria 0001 or Prof. J. van Heerden, P.O. Box 12900, Onderstepoort 0110.

Utrecht, The Netherlands
24 September, 1993.
4th Symposium on "Tropical animal health and production. Recent developments in veterinary epidemiology". Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine. Programme: See under "BIC News". No registration fee. Closing date for registration: 1 September, 1993. Information and registration: Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30.-532116, telefax: +31.30.531815).

Utrecht, The Netherlands
11 October - 26 November, 1993.
3rd International course "Introduction to herd health and epidemiology". Organized by the Office for International Cooperation and the Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: See under "BIC News". Course fee: Dfl. 7,500,-. Closing date for registration 1 August, 1993. Information and registration: Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30532116, telefax: +31.30.531815).

Bangkok, Thailand
24-29 October, 1993.
11th International Symposium of the World Association of Veterinary Food Hygienists (WAVFH). Organized by: The Thai Veterinary Medical Association under the Royal Patronage (TVMA). Information and Registration: The Symposium Secretariat, Dr. Songkram Luangtongkum, 11th WAVFH Symposium, TVMA, 69/26 Soi Athane Theatre, Phyathai Road, Bangkok 10400 (Tel.: +66.2.252.8773/7066, telefax: +66-.2.255.3910).

Oenkerk, The Netherlands
17 January - 15 July, 1994.
7th International course on "Dairy husbandry and milk processing". Organized by: Dairy Training Centre Friesland. Programme general part (11 weeks): Dairy development; animal husbandry; milk processing. Followed by specialized part (15 weeks) which has 3 options. Option 1 and 2: Dairy production (9 weeks) followed by either 6 weeks: Training and extension or by 6 weeks: Dairy farm management. Option 3: Small-scale milk processing. Course fee: Dfl. 4,500. Closing date for registration: 1 October, 1993. Information and registration: Director DTC - Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.5103.1562, telefax: +31.5103.1628.

Bangkok, Thailand
26-30 June, 1994.
13th International Pig Veterinary Society (IPVS) Congress. Organized by: Faculty of Veterinary Science, Chulalongkorn University. Information and registration: Dr. Annop Kunavongkrit, Secretary of the 13th IPVS Congress, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330 (Tel.: +66.22520738, telefax +66.2.2553910).

Oenkerk, The Netherlands
29 August - 7 October, 1994.
International course on: "Modern dairy farmmanagement". Organized by: Dairy Training Centre Friesland. Programme: milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics and Dutch dairy industry. Course fee including board and loging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.-5103.1562, telefax: +31.5103.1628.

EQUATOR

VOLUME 5, NO3 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

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June, 1993

from the editor

Before going into a comment on the articles presented in this issue of EQUATOR, the publishers have to excuse themselves to our Dutch readers. You may have noticed that you did not receive the May issue of EQUATOR. Due to unforseen circumstances the publishing had to be delayed until June. However, we were able to do a mailing on vacancies to selected subscribers. The present issue and number 4/5, a double issue which will be produced in August, are both in the English language.

Two events, important for the international activities of the Utrecht Faculty of Veterinary Medicine, have taken place during the last months.
Firstly, there was the renewal of the accreditation of the faculty by the American and Canadian Veterinary Medical Association (AVMA and CVMA). The faculty received its first accreditation in 1973 and subsequently in 1978 and 1985. This year, the faculty received the designation "fully approved" (for another 7 years) as a result of an evaluation and a site visit in October, 1992. The Faculty of Veterinary Medicine of Utrecht University remains the only European veterinary faculty accredited by the AVMA and CVMA.
Secondly, the Faculty Council has accepted the proposal of the Faculty Board to create the possibility, for the first time, to organize Master of Science courses. This is very good news for those who want to develop international post-graduate education at our faculty and of course for the many potential participants who have been writing in vein with a request to continue their training with an MSc course at the Utrecht Faculty of Veterinary Medicine.

The first course, which will result in a MSc for its participants, is on "Epidemiology and Herd Health". The topics herd health and veterinary epidemiology are at the fore front of this years' the international activities of the faculty. Not only is there the ongoing 18-month MSc course, but it is also the subject of the yearly international symposium on "Tropical Animal Health and Production" (24 September, 1993), as well as of the 7-week international course "Introduction to herd health and epidemiology" (11 October-26 November, 1993). An article in this issue of EQUATOR, based on a presentation by Prof. Dr. A. Brand, sets the scene for these events.

Also in this issue of EQUATOR you find the first part of an interview with Dr. Jack Doyle, the Deputy Director General of the International Laboratory for Research on Animal Diseases (ILRAD), based in Nairobi, Kenya. The Netherlands, as one of the donors of ILRAD, and Utrecht University as one of the longstanding collaborating institutes, have a strong link with ILRAD. For example, the Utrecht professor in Parasitical and Tropical Diseases served as acting Director General of ILRAD and was elected to the Board and selected to serve on the last Quinquennial Review team. Besides, a number of collaborative research projects has strengthened the links between both institutes. Not less than six scientists obtained their PhD degree from Utrecht University based on research (partly) executed at and supported by ILRAD.
Dr. Doyle covers a large number of practical and fundamental matters and give his views on recent developments in tropical veterinary science and medicine, and on the importance of international collaboration and the development and application of new technologies.

ILRAD IS ONE OF THE COLOURS ON THE PALLET

Interview with Dr. Jack Doyle, Deputy Director of ILRAD (part 1)

On 18 May, 1993 Dr. Jack Doyle, Deputy Director General of the International Laboratory for Research on Animal Diseases (ILRAD), based at Nairobi Kenya, made a brief stop-over in Utrecht. Dr. Doyle was invited to present a guest-lecture to a group of final-year veterinary students as part of the ongoing course on "Tropical animal health and husbandry". The editors of EQUATOR took this opportunity to interview Dr. Doyle. Dr. Doyle, a veterinarian who graduated from Glasgow University, has been involved with research and management at ILRAD for almost 20 years. ILRAD, one of the research institutes of the Consultative Group for International Agricultural Research (CGIAR) was established in 1973 with the mandate "To conduct intensive research leading to improved control of important livestock diseases in developing countries, particular in Africa". During this period ILRAD has developed into one of the leading research institutes on livestock diseases in the world. In his capacity as Director of Research of ILRAD, a function Dr. Doyle occupied from 1983 to 1991, he developed and directed ILRAD's research programmes on theileriosis and trypanosomiasis, which have not only produced major scientific breakthroughs in the fundamental knowledge of the parasites and the diseases they cause, but also in the comprehension of the bovine immune system and defence mechanisms in general.
Of course often questions are asked like: "What has all this research contributed to livestock production in Africa and to the income of livestock holder?" and "When will there be adequate, sustainable and economical methods of control for diseases that obstruct livestock development in Africa?"
Dr. Doyle's views about recent developments in tropical veterinary science and medicine, the importance of the application of new technologies and of international collaboration, will undoubtedly be of interest to the readers of EQUATOR.

When ILRAD's mandate was formulated in 1973, diseases were considered to be the major constraint for livestock development in Africa. Is this still so 20 years later?

One can distinguish three major areas of constraint to livestock productivity: animal health, animal nutrition and animal genetics.

Is ILRAD also going into these other two areas as well?

As we will talk about later on, you will find that our work in genetics and trypanotolerance is taking us basically into molecular genetics and molecular physiology, so we are in fact moving into that area as an extension to our current work. In terms of strategic molecular biological research I personally find it very difficult to see any advances in basic research in nutrition which are at a point where they can be transferred towards developing countries. There is plenty of conventional work on nutrition still to be done.

In research on animal health emphasis has been on theileriosis and trypanosomiasis. What have been the major achievements of ILRAD towards improved control of these two diseases after 20 years of research?

I would like to consider two aspects. First is what we have done to sustain the control measures that already exist for those diseases and secondly what we have done to develop new control measures.
In sustaining the existing control measures: where you are going to have problems of drug resistance, of acaricide resistance, problems in tsetse control, the new diagnostic tests that we developed, not only for trypanosomiasis but also for tick-borne diseases in general, are helping to sustain the existing control measures. The work we are doing with the University of Glasgow on assays for trypanocides will also help to avoid problems of drug resistance, which is the major threat at the moment in control of trypanosomiasis.
We have also done a substantial amount of work with FAO and African countries on the infection and treatment method of immunization against

Drug resistance is at the moment a major threat in the control of trypanosomiasis; the use of existing trypanocides will improve once assays for trypanocides, which are being developed at ILRAD and Glasgow University, will be available (photo: collection Murray)

Tropical Animal Health and Production at the Faculty of Veterinary Medicine Utrecht University

Utrecht University, one of the 14 universities in the Netherlands, includes 14 faculties. Its Faculty of Veterinary Medicine is the only veterinary faculty in the Netherlands and, as a result of its scientific and educational standards, it has been accredited by the American and Canadian Veterinary Medical Associations since 1973. Within the Faculty there are 11 departments. Research on tropical animal health is mainly conducted by the Department of Infectious Diseases and Immunology, but other departments are also actively involved in collaborative research in e.g. Zimbabwe, Benin, Costa Rica and Mozambique.

In 1987 the Faculty Office for International Cooperation (BIC) started with the coordination and extension of the international activities. In 1989 the "Committee for the Advancement of Tropical veterinary Science (CATS) was established at the Faculty. The main objective of CATS is the perpetuation and promotion of research and education relevant to the tropics.

The organization of the Symposia on **"Tropical Animal Health and Production"** is an activity of BIC and CATS. The first symposium **"Contributions and perspectives from the Faculty of Veterinary Medicine, Utrecht University"** was held in 1990. During the 1991 symposium, which was subtitled **"Research for development: policies, priorities and options"** various donor agencies presented their policy on research in livestock development and animal health in the tropics. Research priorities of the developing countries were also highlighted. The theme for the 3rd Symposium in 1992 was **Bovine theileriosis**, caused by *Theileria parva* and *T. annulata*, a major disease in Africa and an important subject of research for the Section of Parasitology and Tropical Veterinary Medicine of the Faculty.

For further information please contact:

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Faculty of Veterinary Medicine
P.O. Box 80.163, 3508 TD Utrecht
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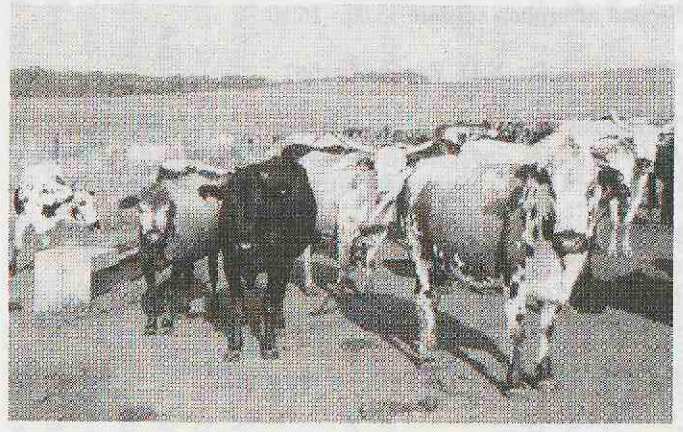


Universiteit Utrecht

24 SEPTEMBER 1993

4th SYMPOSIUM ON

"RECENT DEVELOPMENTS IN VETERINARY EPIDEMIOLOGY"

Time: 09.30 -16.10 hours
Location: Yalelaan 1, De Uithof
Utrecht

Information:
Faculty of Veterinary Medicine
Utrecht University

4th Symposium on

TROPICAL ANIMAL HEALTH AND PRODUCTION

"Recent developments in veterinary epidemiology"

In 1993 the Faculty of Veterinary Medicine organizes its 4th symposium on **Tropical Animal Health and Production**. The organizing committee has selected as this years' general theme: **"Recent developments in veterinary epidemiology"**. Models for the epidemiology of many human and animal diseases have been developed and are for example applied to predict consequences of the development of drug resistance and of the introduction of control methods and new drugs. Models can be helpful in analyzing major disease constraints in livestock production and in the planning of disease control programmes following outbreaks and epidemics. The symposium will pay attention to these approaches and discuss their relevance for the livestock sector in the tropics. The impact and relevance of disease surveys, as conducted in many countries over the last years, will be reviewed. Invited speakers present the epidemiology and control of several major diseases in tropical areas. The application of epidemiological models in veterinary practice will be highlighted. Moreover, scientists, policy-makers and members of development organizations will be able to discuss research requirements in tropical animal health with specific reference to epidemiology and the role of the Faculty of Veterinary Medicine of Utrecht University in this field of research.

SYMPOSIUM ORGANIZING COMMITTEE

Prof. Dr. A. Brand - chairman
Dr. R.W. Paling - secretary
J.H.A. de Gooijer - treasurer
members:
Prof. Dr. A.W.C.A. Cornelissen
Drs. A.A.H.M. ter Huurne
Dr. V.P.M.G. Rutten
Dr. H.A.P. Urlings

PROGRAMME 24 SEPTEMBER, 1993

09.00 - 09.30 Registration

First morning session: 09.30 - 10.40 h.

Opening by Prof. Dr. A. Brand, Department of Herd Health and Reproduction, Faculty of Veterinary Medicine, Utrecht University.

Part 1: **Introduction of epidemiological models**

Chair: Prof. Dr. A. Brand

Introduction to epidemiological models and their application in the tropics.
Y.H. Schukken, E. Perez and A. Brand (Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands and School of Veterinary Medicine, National University, Heredia, Costa Rica).

Epidemiological and economic modelling of foot-and-mouth disease control strategies.
A.A. Dijkhuizen (Agricultural University Wageningen, Wageningen, the Netherlands).

Second morning session: 11.10 - 12.10

Part 2: **Surveys**

Chair: Prof. Dr. D. Zwart (Wageningen)

An evaluation of recent disease surveys in the tropics.
K.H. Zessin (Institute for Parasitology and Tropical Veterinary Medicine, Faculty of Veterinary Medicine, Free University of Berlin, Berlin, Germany).

Livestock mortality in Afghanistan in districts with and without a veterinary programme.
B.E.C. Schreuder, N. Noorman, M. Halimi and G. Wassink (DLO-Central Veterinary Institute, Lelystad, the Netherlands and DCA-Veterinary Training and Support Centre for Afghanistan, University of Peshawar, Peshawar, Pakistan).

First afternoon session: 13.30 - 14.30

Part 3: **Recent epidemiological studies**

Chair: Dr. R.W. Paling (Utrecht)

Epidemiology and economic aspects of calf rearing in differnt production systems in Costa Rica.
E. Perez (School of Veterinary Medicine, National University, Heredia, Costa Rica).

Data and data management in veterinary practice in the communal areas of Zimbabwe.
A.A. Majok (Faculty of Veterinary Science, University of Zimbabwe, Harare, Zimbabwe).

Second afternoon session: 15.00 - 16.10

Chair: Prof. Dr. K.H. Zessin (Berlin)

Transmission of viruses through products of animal origin.
H.A.P. Urlings and C.A.A. in 't Veen (Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands).

Epidemiology of poultry diseases under tropical farming conditions in the Philippines.
L. van der Heide (College of Agriculture and Natural Resources, University of Connecticut, Storrs, USA).

Epilogue and closing by Prof. Dr. A. Brand

REGISTRATION FORM

I wish to attend the Symposium "Tropical Animal Health and Production. Recent developments in veterinary epidemiology" on 24 September, 1993 at the Faculty of Veterinary Medicine, De Uithof, Utrecht.

Registration is free, but please check box for lunch reservation.

☐* I wish to reserve lunch (Dfl. 15,- to be paid at the registration desk)

☐ I do not wish to reserve

* check one box

Name: .....

Institute: .....

Address: .....

Postal code: ..... City: .....

Country: .....

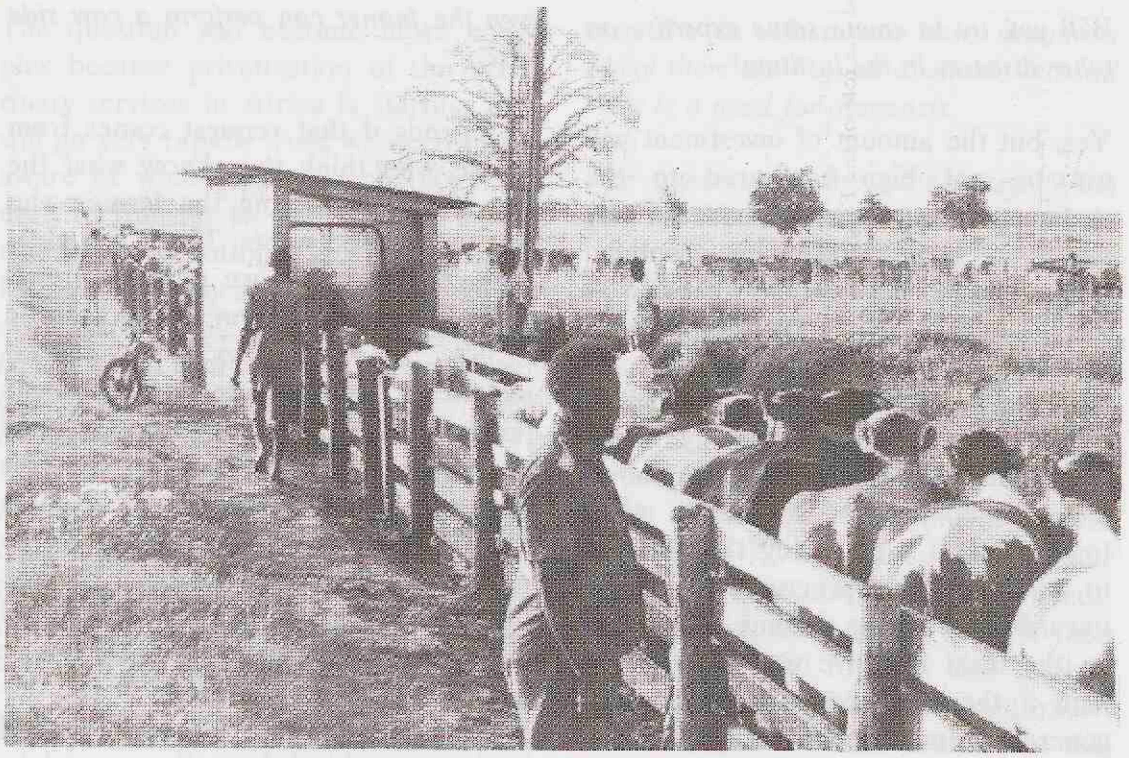
Tel.: ..... Telefax: .....

Date: .....

Signature: .....

Please forward **before September 4, 1993** to:

Office for International Cooperation
Faculty of Veterinary Medicine
P.O. Box 80.163
3508 TD Utrecht
the Netherlands.
Telefax: +31.30.531815



The new diagnostic tests that ILRAD developed for tick-borne diseases are helping to sustain the existing disease control measures such as spaying against ticks with acaricides (photo: Paling)

ECF (East Coast fever), which is now becoming more widely used, especially in the milk production sector. We largely are sustaining the use of that, not only in Kenya, but also in other countries affected by ECF, so that that vaccine can be used today and tomorrow to help these countries to improve their milk production.

In terms of new control measures: in East Coast fever we have a new molecular vaccine, which is looking very promising in pen-trials. We will know within the next two years whether or not that will be the basis of a field vaccine. If so it will be the first molecular vaccine against a parasitic disease and that is what you should keep in mind, especially when you consider the enormous investment that has been put into malaria vaccines, with very little success at the moment.

And then trypanosomiasis. I think the exiting area is really to look at the genetic capacity of indigenous cattle, the so-called trypanotolerant trait, and look at it at the molecular level. As far as ILRAD is concerned this relates to gene maps, we can talk about those later on. But with ILCA (International Livestock Centre for Africa) at the moment we have a very nice example; they have been able to use our new diagnostic test and applied it in quantitative genetics in trypanotolerant cattle in production systems in Zaire and Gabon. By using this very simple test they could breed improved trypanotolerant livestock. That is livestock with improved productive capacity.

Concerning the subject of ECF immunization: 20 years ago there was the infection and treatment method used in various countries with local isolates or the "Muguga cocktail". At this moment it is still the only practical way for immunization. What is the reason why all the efforts at ILRAD to produce a vaccine which can be used to protect against a field challenge did not succeed? Why is it so difficult?

It simply takes time. I remind you that prior to molecular genetics, even in crops it takes 12-15 years to develop a new variety from an existing variety in the field. In our case we really have only been looking at this problem for 12 years, with limited funding. And it is a significant achievement to get to the point where you have a recombinant vaccine that stands up to lethal challenge. We will know within the next 2 or 3 years whether or not this will actually work in the field. But it is not simply the fact that you have got one potential vaccine candidate. What you have is all the technology and all the knowledge that got you there. So, if that antigen does not work, the next one will not take another 12 years, it will take another 12 months. It is on the basis of all the work that is going on that we can now get to the stage where we can test antigens. We do not have to repeat 12 years every time we change. We do not have to change the research, we change an antigen.

This is why we are also looking at the other tick-borne diseases, because so much of the technology we have developed is immediately applicable to anaplasmosis, babesiosis and cowdriosis, the other significant tick-borne diseases which are of global importance, while East Coast fever is basically a problem in East and southern Africa.

So, your prediction is that there will be a vaccine tested under field conditions within 2 - 3 years?

Yes, the only point of constraint at the moment is that we need to build a much bigger facility to actually do the testing of recombinant vaccines in numbers enough to know whether or not you really have a vaccine with which we can go to commercial production and that we do not break any regulation on the use of recombinant vaccines in Africa. We adhere to the major guidelines, so this has got to be done in constrained facilities. We are not simply going out to try a "quicky test" in the field just because it is Africa.

Tests with recombinant materials will also be subject to severe government rules.

Yes. What we have done all the way through is that we have imposed, because African countries do not have appropriate legislation, European, American and Australian guidelines on ourselves to make sure that we are within the bounds of safety, as we would recognize it when working in a developed country. The point is that if ILRAD can get the funds for a new building to test vaccines, that it will become easier for other institutions to test vaccines in that facility for Africa and prevent these institutions from the temptation to slightly go to the margin of existing rules, just because you have a vaccine and you think it works in Africa.

You just mentioned other tick-borne diseases then ECF. Is ILRAD actually working on other diseases like cowdriosis and anaplasmosis?

We have talked about it. The board of ILRAD has recognized that we should in a matter of fact make funding available for collaborative studies on the other tick-borne diseases, because there are similarities in the case of vaccines

that are mediated by antibodies. The work we have done in ECF is directly relevant. It is simply a question of a collaborator finding antigens and us being able to test them, which they can not do. In the case of vaccines mediated by cell mediated reactions, the second half of the ECF research comes into play. Here again we can use the technologies we have developed for ECF to study diseases like cowdriosis, where it looks very much as if cell mediated immunity is critical, rather then as people supposed, antibodies. The amount of work we have done will allow collaborative researchers to get results much quicker then if they would have to start themselves. What we are doing, we do it collaboratively. We will not set off to tackle any disease from square one. This is really how we can use our technology and knowledge to help others to get there quicker.

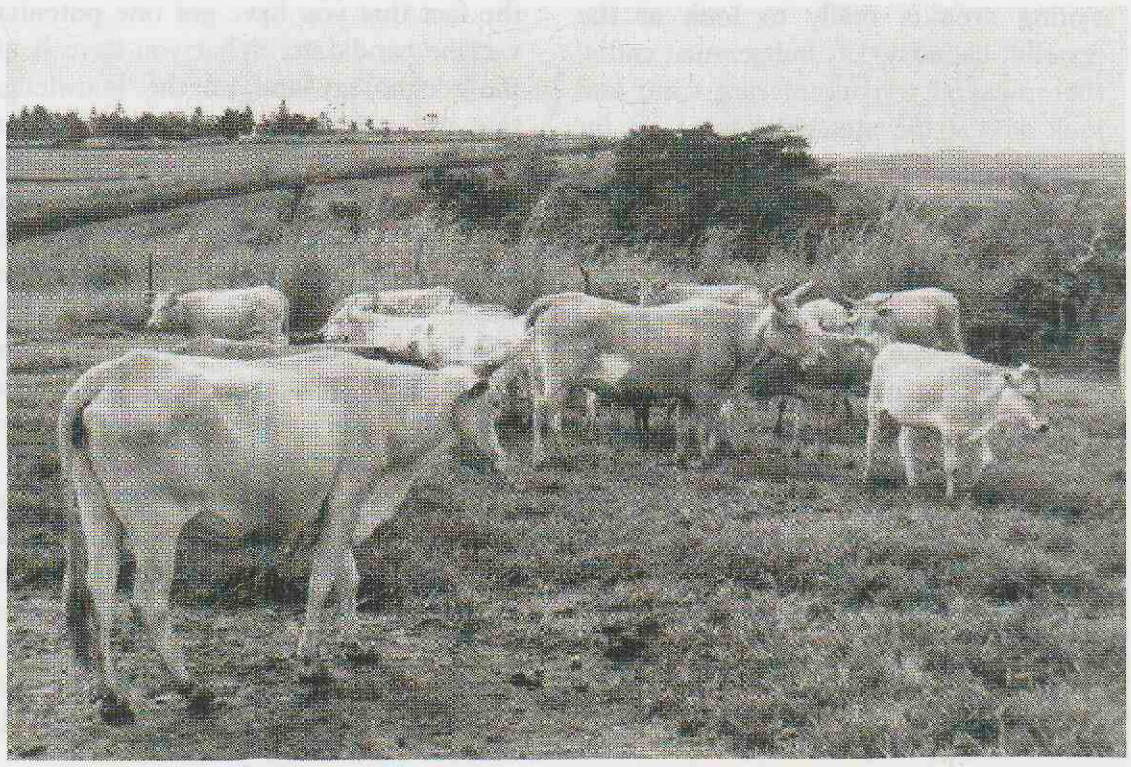
Basically there are 4 groups of people working on the topic of cowdriosis, researchers in South Africa, Florida in collaboration with Zimbabwe and in Europe in Utrecht and at the IEMVT (Institute d'Elevage et de Medicine Veterinaire des Pays Tropicaux) in France. The question is: "How can we all work together, in a collaborative mode rather that in a competitive mode?" The major thing is that people fail to realise that work done in a developed country nearly always comes down to the identification of antigens. But when you move to making a vaccine and testing that vaccine, it becomes enormously more difficult, because you are not allowed to use the parasite in the country, containment facilities are expensive, the epidemiology is different. So, that is where ILRAD can play a significant role in the future, as being a place where people can come together to move from antigens to vaccines. Well all of this depends on the funding and how ILRAD's mandate will or will not be changed or extended in the next couple of weeks.

Will you try to create some expertise on other diseases in the institute?

Yes, but the amount of investment will not be not high compared to the amount of investment we have already made in basic immunology, antigen searching and things like that. So it would not take a tremendous amount of money for us to have competence to host, what I would prefer to call a collaborative group. In this way, scientists from IEMVT, Florida, Zimbabwe and Onderstepoort would all work together at ILRAD, using the facilities to have a conjoint programme to move towards this vaccine. I think that would be the most effective way of doing it. And if these people have funds, they generally come from the same donors as we have. This will ensure that the donors as well are happy that the whole programme is moving along under some coherence, rather then little bits being done at vast costs without knowing where they will fit in the end. So our staff does not need to expand hugely, but the number of people working at ILRAD might expand considerably, but they will be staff from other institutions.

Going back to trypanosomiasis, one of the achievements was the development of the ELISA antigen test. There have been a lot of discussions that not all veterinary care in Africa can be done by veterinarians. There are laymen, animal health extensionists, etc. who should also be able to do a diagnostic test. Do you think this antigen ELISA test will reach a stage where a veterinary assistant or even the farmer can perform a cow side test?

It depends if that request comes from people who think they know what the farmer wants or from the farmer who tells us what he wants. There is a clear distinction there. If we consider trypanosomiasis in relation to diagnostic ELISAs, the technology in the developed world for cow side or animal side testing really comes out to be a cost of 5 - 10 $ per diagnostic test. There is little way I can see a farmer, even in the developed world, who is going to pay 5 or 10 $. But where I think it becomes important is that at some level diagnosis on a herd health basis can be done and the epidemiology of the disease becomes known. Then a farmer, if he believes this information, - and he will do because he can see the disease himself - will do the most critical thing and that is to treat all the animals that are apparently exposed.
The problem with trypanosomiasis is not individual treatment, it is the fact that the farmer does not treat enough or that he underdoses because he has only bought one bottle and he has more cows to treat. The farmers are not stupid, they are very good clinicians themselves. What we really want to move forward to is to use the test in the best way possible, so that the farmer knows that for a given expenditure he can treat all the animals and they will remain productive. That is really what the farmer needs and we do not make the problem of drug resistance worse because the farmer undertreats either its numbers or the individual animals.



By using the very simple antigen ELISA test for trypanosome detection, which was developed at ILRAD, ILCA could accelerate, by applying quantitative genetics, the selection of improved trypanotolerant livestock in Gabon (photo: Paling)

The question will become more complex because privatization of the veterinary services in Africa is starting and will go very rapidly. And we need to be aware of what level of technology we need to transfer to what type of either research institution, local veterinary laboratory or local practitioner in this evolving situation. At the moment that is not clear. But we can certainly use the technology to help the farmer, that is absolutely clear.
Whether the farmer can use it to help himself? I suggest there are no indications, even in the developed world, that that approach has worked financially or in a productive term in large animal production systems.

Mainly because in Europe the concentration of veterinarians is so high that they usually make the diagnosis for the farmer. But in Africa you have situations where there are no vets available but still there is a need for diagnosis.

The question is the other way. What you are actually saying is that we do not have cow side diagnostics because we have got better things to do. Let me tell you, if we had cow side tests and we have veterinarians to do it, the farmers would do it themselves, and in a number of diseases. I think it is up to us as veterinarians to actually ask ourselves in these different epidemiological situations: " What does the farmer need", and then tailor it to their needs. That requires much more thought then simply a demand for cow side testing. If you can tell a farmer, a pastoralist, that if they move their animals at this time from A to B and they are going through a tsetse belt - and you know the disease is there because you have used the test to prove the tsetse are infected - then you know what the level of challenge is going to be. Then you can advise them how and when to administer the drug to get them through this period. And that is a far more rational and better way of doing things then simply demanding an ability to diagnose an individual animal. I think we got to use this test in a better way.

Robert Paling
Jean de Gooijer

(Part 2 of the interview with Dr. Doyle will be published in the next edition of EQUATOR in August, 1993).

PRINCIPLES OF HERD HEALTH AND PRODUCTION MANAGEMENT PROGRAMMES FOR DAIRY HERDS IN TROPICAL COUNTRIES[1]

In industrialized countries veterinary services in the food animal sector have evolved from individual treatment of diseased animals and controlling major infectious diseases by eradication, to collective prevention by vaccination and disease monitoring programmes. This resulted in many countries in a considerable improvement of animal health. In the 1970's these achievements were followed by herd fertility programmes with regular scheduled farm visits. As a consequence of this approach, dairy farmers began keeping records and using pregnancy diagnosis results to accurately determine drying off times, predict calving dates and make culling decisions. An overall consequence of these programmes was improved farm management. As soon as dairy farmers recognized the benefits of reproduction management programmes, a strong request arose for similar programmes in other operational areas such as: health care, nutrition, milk production and replacement rearing.
This led to the development of integrated Herd Health and Production Management Programmes (HH & PMP) for use by veterinary practioners. These programmes form the basis for the development of areas of veterinary specialization. In an HH & PMP the technical and theoretical well known approaches in individual animal health care are broadened to incorporate the herd or farm as the unit of interest. The primary goal of these programmes is to improve profit and productivity of the dairy enterprise by measuring, assessing and improving management performance. In this paper the infrastructure for privatized veterinary services in tropical countries and principles and techniques used in an HH & PMP for dairy farming will be discussed.

Introduction
Animal health services in many developing countries have been directed towards the implementation of disease surveillance and control programmes that are intended for application on national or regional scale. Departments of Veterinary Service of the Ministries of Agriculture of various countries in Africa and Central America have started herd health monitoring programmes, mostly supported by international organizations for development cooperation. Initial goals were to determine the reproductive performance, productivity and production and health constraints of selected existing livestock production systems. Following a regular (monthly) collection of herd data of identifiable animals over periods of 2-5 years and the detailed determination of aspects of management, health problems and nutrition, it has been possible to identify major constraints.
In the medium and large size commercial dairy farming enterprises in Zimbabwe and Costa Rica, the HH & PMPs have been successfully introduced. The encountered constraints and the possibilities for interventions were very similar to those in the industrialized countries. Problems like prolonged calving interval, high calf mortality, mastitis and lameness could, in general,

[1] This is an abridged version of a presentation given by Prof. Dr. A. Brand during an expert panel consultation at FAO, Rome in March 1993. Correspondence on the subject can be directed to Prof. Dr. A. Brand, Faculty of Veterinary Medicine, Department of Herd Health and Reproduction, P.O. Box 80.151, 3508 TD Utrecht , The Netherlands

be corrected or improved through interventions in the management. Under these conditions it has also become possible to set targets for improvement of productivity for individual farms of herds. In both countries the private sector, including private veterinarians, have taken up the concept of HH & PMP.

Herd monitoring projects

Various herd monitoring projects have been implemented over the last decade in a number of tropical countries with varying results. For example in Borena, Ethiopia, it was concluded that range and water resources may have reached their potential capacity to support sustained herd growth under the pastoral conditions. Here there has been no follow-up. Likewise in Nicaragua, where internal parasites and ticks were identified as the major constraint for increased productivity. In several other instances there have been initiatives to influence or control the limiting factor(s) and measure the subsequent changes in the health status and productivity of the herds. Interesting results were obtained under village conditions in tsetse affected areas of Africa. In The Gambia, where feeding during the dry season is a problem, a marked improvement in milk production was noticed following the introduction of locally available food supplements. Following the introduction of novel methods for tsetse control in northern Ivory Coast, the effects on tsetse challenge, trypanosomiasis prevalence and productivity were measured; in Ethiopia the changes in the requirement for chemoprophylactic treatments for trypanosomiasis control were determined. The monitoring of zebu cattle, kept under hot and humid climatical conditions in the Coastal Province of Kenya, resulted in the identification and relief of three serious constraints in relation to nutrition and endemic diseases. In areas where intensive dairy farming has been introduced, the monitoring projects identified drawbacks in the reproduction performance and the health status, which could often be corrected through management interventions. An example that can be mentioned is the small scale dairy farming enterprise under village conditions in eastern Tanzania. Here the introduction of the zero-grazing system allowed the use of highly susceptible dairy cows in East Coast fever (ECF) endemic ares.

What most or probably all these studies have in common is that they are done on a project basis and that the follow-up is not guarantied. The involvement of private veterinary practitioners has therefor become an essential aspect of a sustainable livestock service in these countries.

Infrastructure

For the implementation of HH & PMPs in developing countries a proper infrastructure is needed. It should contain the following organizational, technical and financial elements: (1) private veterinary practices; (2) regional veterinary diagnostic laboratories; (3) veterinary schools that include herd health and production training in their curriculum; (4) extension service organizations; (5) epidemiological information systems; (6) sufficient funding, equipment and materials (cars and motorbikes, instruments and drugs etc.) and (7) qualified personnel.

Protocol of an HH & PMP

Examination of a sick individual animal follows a protocol that contains a sequence of steps in which attention is paid to every relevant aspect of the function of the body as a whole and of its separate organs. These observations can lead to a diagnosis. In HH & PM services, the examination of the management of the whole enterprise or of the various farm functions should also make use of a protocol or systematic approach. By employing an HH & PMP protocol, management may be examined thoroughly and systematically, comparable to the conduct of a clinical examination of an animal. An HH & PMP protocol consists of four main components: (1) objectives; (2) materials and methods; (3) interpretation and (4) follow-up or assessment. Interpretation encompasses three sources of information: data collected by the farmer, data resulting from clinical examinations by the practioner and farm inspection data. Follow-up includes actions and advices and/or adjustment of pre-set targets.

Objectives

Objectives can be defined either as general objectives, reference values or pre-set targets to be achieved on a specific dairy farm or group of dairy herds.

The primary general objectives of an HH & PMP are directed towards diagnosis and manipulation and optimization of: (1) the health and well being of the herd; (2) the productivity of the herd (and land); (3) the quality and safety of dairy and meat products and (4) the economic viability and sustainability of the enterprise.

Reference values for various farm performance figures are or might be available as regional averages. Pre-set targets are defined for individual farms or herds and may be lower or higher than reference values. Setting pre-set targets implies shifting farm management from an intuitive to an objective approach. These targets are not only a starting point of the programme but also impart direction to the programme.

Materials and methods

Materials and methods are the tools and techniques used by both the veterinarian and the farm advisor to help the farmer to reach the pre-set targets.

Interpretation

Interpretation is the integration of information obtained from monitoring raw data, from calculating performance figures and from making evaluations and analyses of performance parameters. The final goal is to determine whether or not the objectives are met. Experience and long term record keeping will stimulate recognition of seasonal patterns and non-significant deviations.

A set of herd-based performance figures, that can be used to monitor the herd's health and productivity, are needed. Examples of such figures are: calving interval of the herd, incidence of abortions (%), disease prevalences and incidences, milk production level, roughage production per ha etc. These performance figures are different from physical performance parameters such as: body temperature, pulse and respiration rate in individual animals. This means that in the evaluation process, a switch has to be made from the use of physical performance indicators to herd performance indicators. Once the switch is made the clinical approach for individual animals is also applicable to a herd.

Analysis

Analysis encompasses the resolution of performance figures into simpler elements and sometimes requires epidemiological comparisons. The analysis may need to incorporate information

Materials and methods of an herd health and production management programme

Contents and frequency of farm visits

The contents and frequency of farm visits depend on the number of animals in the herd and on the number of farm functions included in the programme. If herds consist of only a few animals, herds can be grouped and considered as one herd. The operational management of a dairy farm can be divided into eight separate functions, which include most of the farm activities. The individual functions are (1) crop production; (2) feeding management; (3) health care; (4) reproduction; (5) milk production; (6) replacement management; (7) fixed asset and labour management and (8) cash management.

The costs of the proposed herd health and production management programme (HH & PMP) should be convinced that the benefits of the overall HH & PMP exceed the costs although specific proof of this relationship will be impossible in many cases.

Data recording

Each of the earlier mentioned functions consists of several interrelated processes. For example, the processes contained within health care are: observation, examination, prevention, treatment and assessment. Each of these processes generate data that have to be recorded.

Data recording is the heart of the HH & PMP. The weakest link in an HH & PMP is usually inaccurate or insufficient daily record keeping, not only by the farmer but also by the practioner. Without good records, no meaningful evaluations can be made of planned objectives and no analysis of herd performance can be undertaken. Therefore the follow-up or assessment can not be conducted. The examination of a reliable data will result in a clinical and epidemiological diagnosis and in the quantification of a problem.

Within the framework of an HH & PMPs, one has to realise that in most cases data may be only present in the mind of the farmer or scattered in many different spots. The first step in an HH & PMP is to train the farmer or herdsman in accurate, daily data collection, so that the information becomes more tangible and accessible.

Record keeping systems

The form of the record keeping systems is important and will increase or limit the ability of the farmer and HH & PM practioner to make sound interpretations and decisions. They may include: (1) farm diary; (2) barn charts and (3) electronic data systems. Data collection and storage must be followed by computation and processing of performance figures and subsequent analysis.

Activities during the first visit

Several activities have to be performed during the first farm visit or better before the first farm visit. These include: (1) consulting the producers in the definition and implementation of HH & PMP and making use of the knowledge, skills and analytical ability of local farmers and herdsmen; (2) a good technical and sociological understanding of farming systems used in (rural) communities. It is always important to examine if HH & PMP can be implemented under specific cultural, religious, sociological and ecological circumstances; (3) awareness of gender influence in livestock keeping; (4) collection of comprehensive and recent data on actual production of milk, meat, manure and draught power, on which HH & PMP planning can be based and (5) taking time to listen to farmers and offering them to share their knowledge with others. In order to observe farm conditions over the breadth of farm operations the first visit will usually require more time than later visits. Clinical examination and general observation of the enterprise and herd should always be included.

Farm inspection and general discussion of the operations

A farm inspection is an in-depth epidemiological examination of a farm function, in which attention is paid to all relevant interactions between hosts, agents and the environment. A farm inspection will be conducted in some form at each visit. Initially, the veterinarian should become familiar with all aspects that might influence the herd performance. However, the aspects of farm management that are most closely related to the initial focus of the HH & PMP should receive greatest attention. The following items should be examined: (1) observation of cows, farm conditions and management aspects. Observation of management activities is a basic instrument in an HH & PMP. (2) feeding, (3) manure management and (4) pasture management.

Clinical activities

Usually clinical activities are performed first during the farm visit. The activities should be directed towards the chief complaint that initiated the HH & PMP. One of the reasons for immediately inspecting or treating the individual animal, when the major concern of the HH & PMP is the status of the whole herd, is to insure the farmer that he will get service in addition to advice as part of the programme. During the first visit and depending on the current information about the reproductive status of individual animals, the veterinarian must decide whether to rectally examine all cows or only those of unknown status The size of the herd and the restrain facilities will influence how this is handled.

Clinical activities are continued by examination and treatment of sick, mastitic or lame cows. Blood, milk, faeces, or urine may be collected for laboratory examination if the data obtained will be relevant to the problem initiating he HH & PMP or if analyses are indicated by observations.

Youngstock examination for the status of health, growth and reproductive function is done following the same procedures as in adults. Discussion of current replacement rearing policy can be incorporated into these activities. Preparation for the (next) farm visits also includes the making of work lists, data acquisition or computer entry and data analysis. The routine clinical work at the farm, performed at set intervals, provides regular opportunities for observation and data collection.

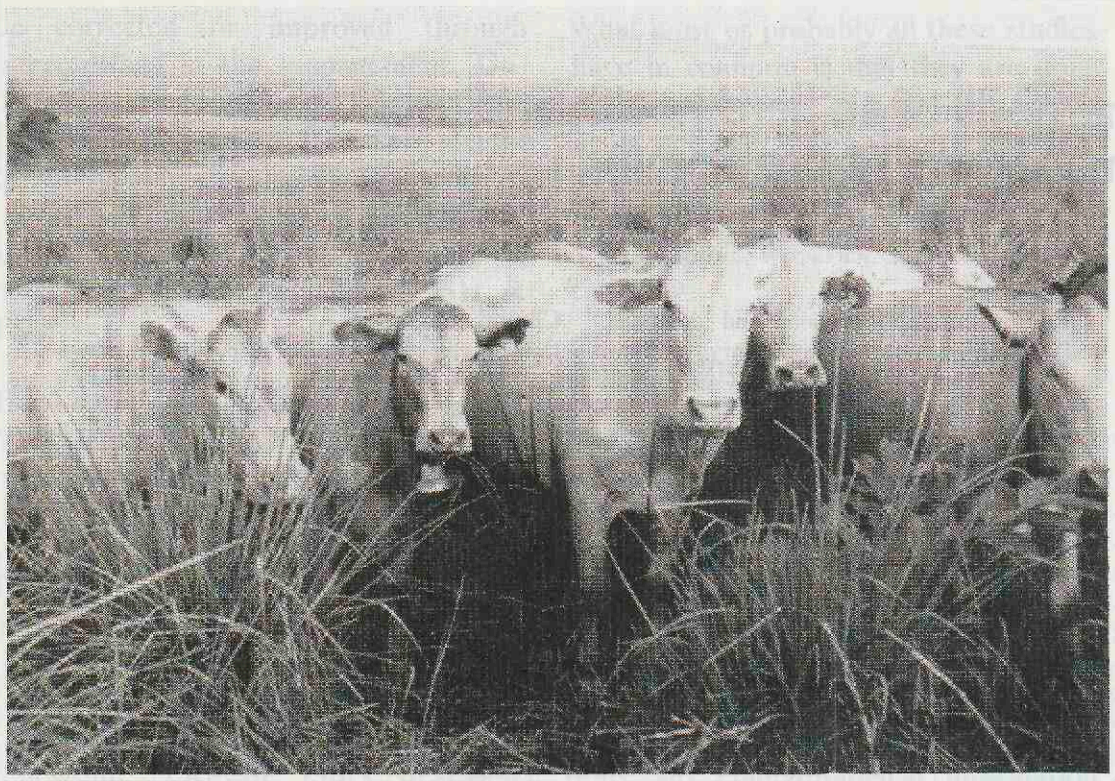
Activities during subsequent visits

Usually a protocol for activities is established that follows a logical sequence and covers the following aspects: (1) routine genital examinations, clinical examination of sick or lame animals and treatments; (2) youngstock growth monitoring; (3) collection of samples for laboratory disease diagnosis, disease monitoring, or surveillance; (4) farm inspection to monitor progress in planned changes and to check for pending problems; (5) collection of farmer recorded data; (6) review of performance figures; (7) planning for the solving of problems recognized during analysis or identified during farm inspection and (8) scheduling of next farm visit.

from a farm inspection and laboratory result. The analysis of the data collected by the farmer, veterinarian, veterinary assistants, including data from the farm inspection, will lead to a performance related, herd level diagnosis. The epidemiological components will provide insight into risk factors that may be modified by management changes.

Follow-up

The fourth component of the system is the follow-up. It includes: (1) the translation of the interpreted results into actions and advice for corrective mea-



Following regular collection of herd data of identifiable animals and the detailed determination of aspects of management, health status and nutrition, it may be possible to identify major production constraints (photo: Paling)

sures; (2) assessment of the effects of measures previously taken, or if indicated; (3) re-setting the objectives and (4) continuing with the routine activities through the next farm visit.

Conclusions

In most tropical countries local veterinary practioners managing a private practice hardly exist. This is clearly demonstrated in many reports on livestock services for smallholders. In order to help livestock farmers in developing countries to move from subsistence level of farming to a more production oriented system, the veterinary infrastructure has to be improved. The establishment of private veterinary practices is a first prerequisite for achieving this goal. However, privatization has not been very successful for professional veterinarians and requires as such support from national and international organizations. A second instrument is the implementation of integrated HH & PMP. In these programmes the veterinary practioner, farm advisor and the farmer must cooperate by implementing their specific skills to understand and manipulate the complex nature of health and productivity. Farm visits should be made on a regular basis instead on emergency calls.

Proper infrastructures are needed to improve animal health and productivity. they can be created by switching health services from the public to private sector where possible. The key words for this are: establishment of private veterinary practices in rural areas, turn out by veterinary schools of veterinarians with excellent clinical skills and knowledge as well as well trained paraveterinarians; good functioning regional veterinary diagnostic laboratories and livestock extension service organizations and, last bot not least, capable farm advisors working in concert with the local veterinary assistance. Animal health services must be located in the villages where farmers, especially smallholders, live.

Services should be delivered by locals who understand and can communicate with farmers. Up-dated resource bases and continued education programmes of involved personnel are needed. The development of veterinary assistance should be started on a small scale and should be subsidised whenever required. International development programmes should be aimed at supporting such developments.

A. Brand, R.W. Paling
Y.H. Schukken, C.L. Guard

DIO COMMUNICATIONS

ANNUAL SYMPOSIUM OF DIO

On 27 January, 1993 the Foundation Diergeneeskunde in Ontwikkelingssamenwerking (DIO) organized its annual symposium. This year's symposium was entitled "Livestock production and environment in developing countries". Prof. Dr. D. Zwart gave an introductory presentation on "Perspectives of sustainable livestock production in developing countries". The following speakers covered subjects like: intensive versus extensive production systems (Drs. Van Dixhoorn), sociological and extension aspects of livestock production (Ir. Beerling) and environmental effects of overgrazing (Ir. Baars). The last two speakers presented data on the livestock development project in Zambia. A booklet, containing abstracts of the presentations can be obtained from DIO.

ANNUAL MEETING OF VSF-EUROPA

On 27 February, 1993 the annual meeting of the organization "Vétérinaires sans Frontières Europa" took place in Edinburgh. A copy of the report of this meeting can also be obtain from DIO. The next meeting, which will take place on 28-29 January, 1994 will be held in Utrecht. We will keep you informed!

Our adrress:
Foundation DIO, Yalelaan 17, P.O. Box 80156, 3508 TD Utrecht, The Netherlands (Tel.: +31.30.532032).

VETERINARY TRAINEESHIPS IN THE TROPICS

Collection of ticks in Costa Rica

During the 6th (last) year of their education at the Faculty of Veterinary Medicine of Utrecht University, the Netherlands, veterinary students with an interest in the tropics can choose to take part in a special 10 week course on "Tropical animal health and husbandry", the so-called "Tropencursus". Students who seriously consider to opt for a job in the tropics once they have graduated, may wish to do a student traineeship as part of their veterinary education in a tropical country, usually as a follow-up of the tropical course. After finishing their veterinary education, the special course on tropical animal health and husbandry and the practical training in a tropical country, these young veterinarians are well prepared to start a professional career in the livestock sector in any part of the world. Patrick Hermans is one of them. He has just completed two-thirds of his six months traineeship at the Escuela de Medicina Veterinaria in Heredia, Costa Rica, where he studies ticks of livestock and the infections they carry. This is his report from Central America.

A long standing wish

When I made my choice to start studying veterinary medicine, already I had the idea that once I might be working in the tropics. During my study, for several reasons, I did not do a traineeship in the tropics. However, when I was at the end of my 6th year and finishing my co-assistantship with the course on tropical animal health and husbandry, I decided to do a traineeship at the very end of my veterinary training. So, when my colleagues made their first uncertain steps in veterinary practice or were searching for a job, I left for Costa Rica. In September, 1992 I started with a research project on ticks of livestock. Now, while I am writing this article, two-thirds of my time here have past. Time flies!

Costa Rica

Costa Rica is a very pleasant country to do a traineeship. The standard of living is, compared to other parts of Central America, rather high and also with regard to democracy and human rights, the country is a paradise in a turbulent region. However, coming from the Netherlands, I had to get used to some differences, so are the houses in general rather small and simple, the roads in poor condition and the cars of old age. And, although there is a large middle class, the differences between the rich and the poor are more evident than in the Netherlands.

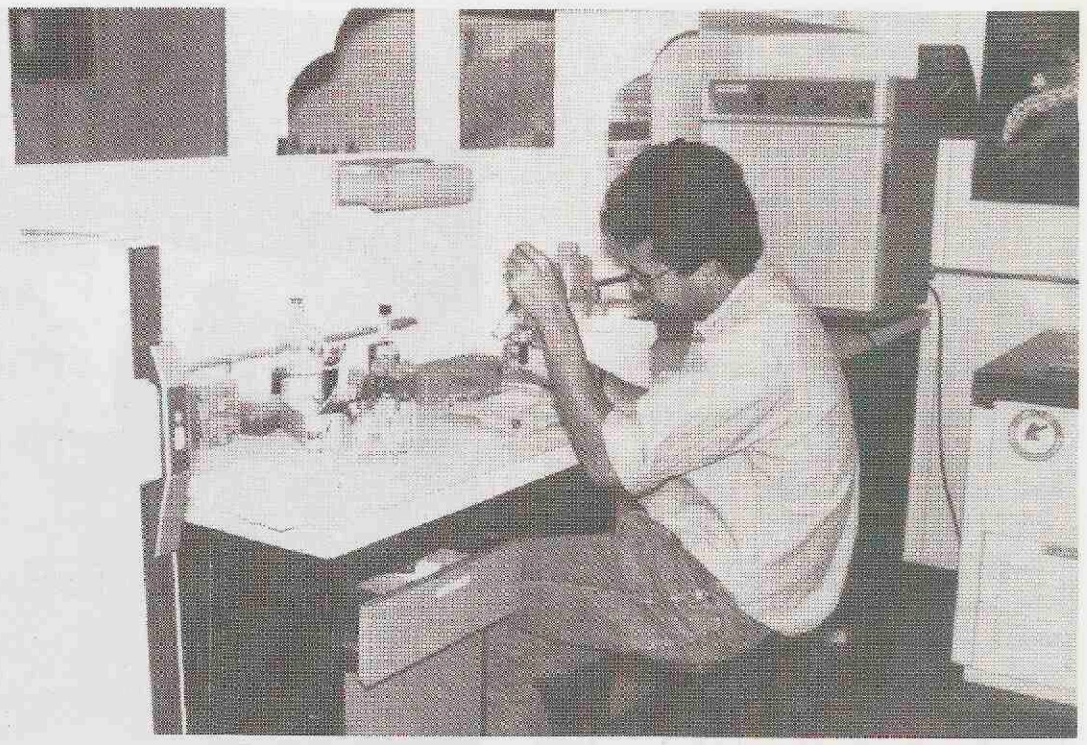
Apart from being a pleasant country to do a traineeship, the country is also an ideal place for holidays. There are many splendid national parks and vast beaches, of which most can be reached in a few hours by public transport. One is tempted to let the weekends last for 3 or 4 days!

My research project

Apart from walking through the tropical rain forest and sun bathing on the white beaches, I also try to do some work in the veterinary field. I follow my traineeship at the veterinary school of the Universidad Nacional (UNA) in Heredia. This veterinary school has a programme of collaboration with the Faculty of Veterinary Medicine in Utrecht. I perform a study on the presence of ticks on cattle and look at the seasonal variation (dry and rainy season) in the numbers of the different species. For this study we have selected five farms in two different areas of Costa Rica. Each farm is visited once a month and three to five animals are chosen at random. Each of these animals is put to the ground and all ticks, present on one side of the animal, are collected.

Also we collect blood samples from

Animals are put to the ground and all ticks present on one side are collected (photo: Dwinger)



Patrick Hermans in the laboratory. Serum is separated and will be examined for antibodies (photo: Dwinger).

each of the animals. These will be examined for *Anaplasma* and *Babesia* parasites. For this purpose a blood slide is made and examined and serum samples are collected to be tested for the presence of antibodies.

The tick study

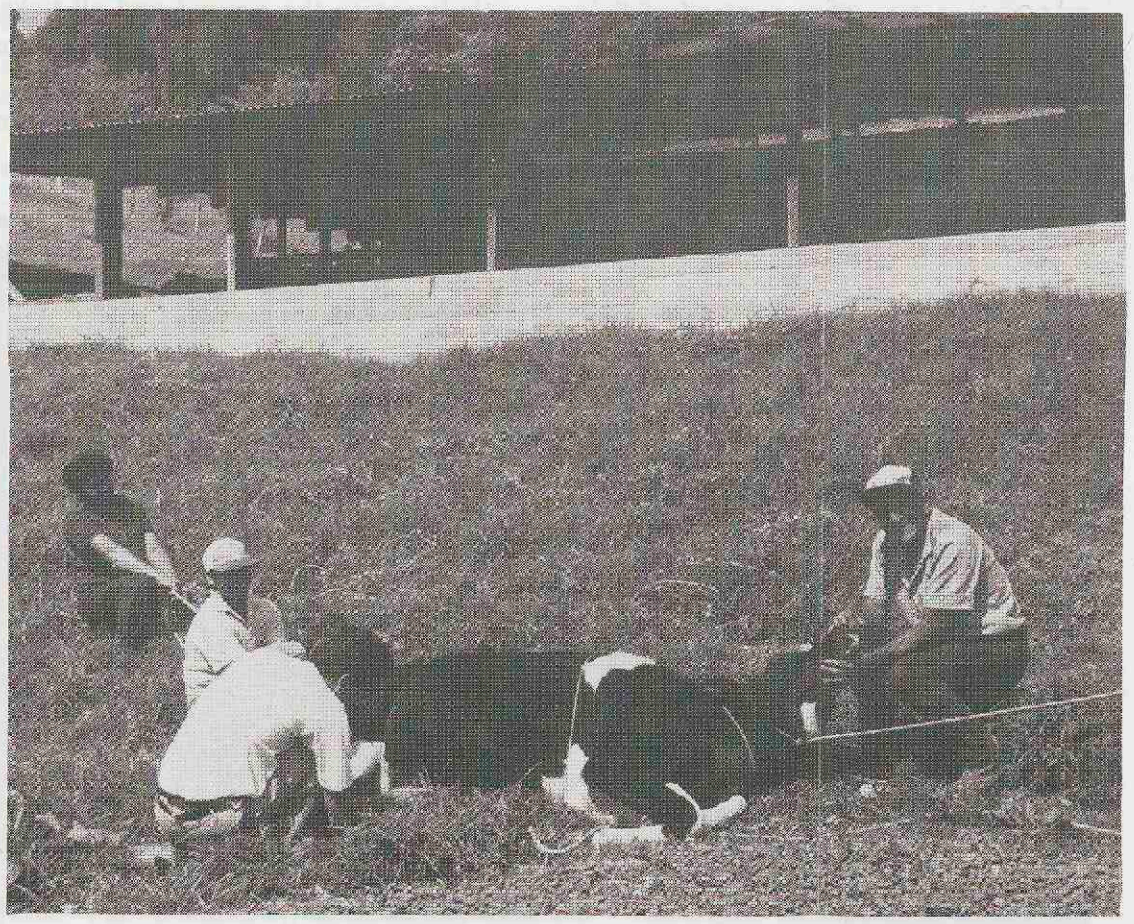
A second aspect of the study, which sofar has not come of the ground very well, is the determination of the level of infection of ticks with *Anaplasma* and *Babesia* parasites. Of all female ticks larger than 5 mm. a smear is made of the haemolymph and it is the intention to examine these smears using an immunc fluorescence test (IFT). Up to now we have not succeeded to obtain results with this test, mainly due to a lack of experience in using IFT for the examination of haemolymph.

The research protocol of my training indicated that the polymerase chain reaction (PCR) would also be used to determine the infection rate of ticks. However, soon it became clear that the essential requirements for this test were lacking. Through the contacts that the veterinary school of Heredia maintains with the veterinary faculty of Missouri in the USA, we have now been offered the possibility to perform the PCR at their laboratory. At the end of my stay here I hope to spend a month in the USA to determine the infection rate in the ticks we have collected by using the PCR.

Some thoughts

All considered, it is a good experience to be and to work here for six months. Although many people do not consider Costa Rica to be a developing country, for me there are a good number of things I associate with a developing country. This varies from cuts in the power and water supply, to the fact that one has to be very patient to get something done. Especially, institutions like banks, the post office, government institutions, the university etc. do not seem to function efficient at all times. I learned that it is best to accept this. If one tries to speed things up this may well have the opposite effect. Certainly, once I am back in the Netherlands I shall recall with sadness all the positive experiences I had, the friendly people, the beautiful nature and the pleasant climate.

Patrick G. Hermans



It is important to put animals on the ground as most ticks are present on the ventral parts of the body (photo: Dwinger)

BIC NEWS

THIRD INTERNATIONAL COURSE "INTRODUCTION TO HERD HEALTH AND EPIDEMIOLOGY"

After 2 succesfully completed courses, the third international course "Introduction to herd health and epidemiology" will be organized from 8 October to 26 November 1993 in the Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. The Office for International Cooperation will organize this 7-week post-academic course.

Subjects
The course is directed towards dairy cattle and dairy cattle husbandry.

The following subjects will be given attention:

* Introduction to herd health and the VAMPP-programme for fertility control of dairy cattle;
* introduction to veterinary epidemiology;
* fertility analysis and aspects of reproduction like gynaecology, animal husbandry, artificial insemination and embryo transfer;
* claw disorders;
* mastitis: diagnosis, epidemiology, therapy and prevention;
* calf rearing and nutrition.

Besides attending lectures, practicals and demonstrations, participants will visit a number of dairy farms in the service area of the ambulatory clinic of health services. Also, the touristic interest of the participants will not be forgotten. The course includes 2 days of excursions to interesting sites in the Netherlands.
Following this course, the possibility exists to follow more specialized training on an individual basis.

Course fee
The course fee is Dfl. 7.500,-, excluding the costs for travel, subsistence, lodging and medical insurance.

Information and application
The coordinating bureau requires a good knowledge of the level of education and the working conditions of the candidates for selecting the appropriate participants for the course. Therefore, applicants have to send a letter with a detailed curriculum vitae, stressing academic and/or professional merits.
Closing date for registration: 1 August, 1993.

For more information and application, please contact the Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht, the Netherlands, tel: +3130-532116, telefax: +3130-531815.

VACANCIES INTERNATIONAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from Vacaturcblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RDP Advies/ Ministry of Internal Affairs) etc., there will be room for personnel advertisements. For further information one is requested to apply directly to the institution or company.

MINISTRY OF CATTLE RAISING AND AGRICULTURE (URUGUAY)

VETERINARY CONSULTANT / URUGUAY

General information:
The project has the following general outline: Realization of an study on the feasibility of a project to eliminate brucellosis and tuberculosis in bovines.

Activities:
The professional to be contracted will carry out a feasibility study on the elimination of brucellosis and tuberculosis in bovines and the implementation of a system of epidemiologic vigilance, prevention and evaluation of the economic impact of chronical diseases and subclinic complexes in the Uruguayan cattle breeding. A maximum of 3 missions, with a total duration of 2 months will to be conduted during a period of 6 months.

Conditions:
The professional to be contracted will act as Director of the Project and will receive a salary equivalent to $ 20,000 for the 2 months period and other benefits.

Qualifications:
Specialization in epidemiology and/or planning in animal health and production (MSc or PhD).
Oral and written command of the Spanish language and/or English language.

Application:
Please forward a CV to: Dr. Dante Geymonat, Director General de los Servicios Veterinarios, Ministerio de Ganaderia, Agricultura y Pesca, Colonia 892-2° Piso - Montevideo, Republica Oriental del Uruguay (Tel.: +598.2-.920227, telefax: +598.2.980234 or 985603).

Closing date: 30th of June, 1993.

(The full text in Spanish can be obtained from the Editorial Office of EQUATOR, telefax: +31.30.531815).

CALENDAR 1993-1994

Cambridge, United Kingdom
8-13 August, 1993.
14th International conference of the world association for the advancement of veterinary parasitology. Theme: "Understanding and control of parasitic diseases of animals". Sub-themes: Parasite control in (1) Sustainable production systems, (2) Intensive versus non-intensive systems for ruminants and non-ruminants, (3) Nomadic situations and (4) Transhumance situations; Genetic resistance to parasitic diseases; Vaccine development; Vector biology and control; Chemotherapy and delivery systems for blood protozoa and helminths; Anthelmintic resistance; Teaching veterinary parasitology. Information: Prof. Lord Soulsby, Dep. Clinical Veterinary Medicine, Madingley Road, Cambridge CB3 OES (Telefax.: +44.223.337610).

Oenkerk, The Netherlands
30 August - 8 October, 1993.
International course on modern dairy farm management. Organized by: Dairy Training Centre Friesland. Programme: Milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics; Dutch dairy industry. Course fee including board and loging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.-5103.1562, telefax: +31.5103.1628.

Kruger National Park, South Africa
14-18 September, 1993.
Symposium on: "The capture, care and management of threatened mammels". Organized by: The World Association of Wildlife Veterinarians and the Wildlife Group of the South African Veterinary Association. Information: Dr. Ian Epsie, 209, Clara Rerea, 18 Clara Street, Pretoria 0001 or Prof. J. van Heerden, P.O. Box 12900, Onderstepoort 0110.

Utrecht, The Netherlands
24 September, 1993.
4th Symposium on "Tropical animal health and production. Recent developments in veterinary epidemiology". Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine. See programme and registration form enclosed in this issue of EQUATOR. Location: Yalelaan 1, De Uithof, Utrecht. No registration fee. Closing date for registration: 4 September, 1993. Information and registration: Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30.532116, telefax: +31.30.531815).

Utrecht, The Netherlands
11 October - 26 November, 1993.
3rd International course "Introduction to herd health and epidemiology". Organized by the Office for International Cooperation and the Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: Introduction to herd health and the VAMPP-programme for fertility control of dairy cattle; introduction to veterinary epidemiology; fertility analysis and aspects of reproduction like gynaecology, animal husbandry, artificial insemination and embryo transfer; claw disorders; mastitis: diagnosis, epidemiology, therapy and prevention; calf rearing and nutrition. Course fee: Dfl. 7,500,-. Closing date for registration 1 August, 1993. Information and registration: Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30-532116, telefax: +31.30.531815).

Bangkok, Thailand
24-29 October, 1993.
11th International Symposium of the World Association of Veterinary Food Hygienists (WAVFH). Organized by: The Thai Veterinary Medical Association under the Royal Patronage (TVMA). Information and Registration: The Symposium Secretariat, Dr. Songkram Luangtongkum, 11th WAVFH Symposium, TVMA, 69/26 Soi Athane Theatre, Phyathai Road, Bangkok 10400 (Tel.: +66.2.252.8773/-7066, telefax: +66.2.255.3910).

Oenkerk, The Netherlands
17 January - 15 July, 1994.
7th International course on "Dairy husbandry and milk processing". Organized by: Dairy Training Centre Friesland. Programme general part (11 weeks): Dairy development; animal husbandry; milk processing. Followed by specialized part (15 weeks) which has 3 options. Option 1 and 2: Dairy production (9 weeks) followed by either 6 weeks: Training and extension or by 6 weeks: Dairy farm management. Option 3: Small-scale milk processing. Course fee: Dfl. 4,500. Closing date for registration: 1 October, 1993. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.5103.1562, telefax: +31.5103.1628.

Bangkok, Thailand
26-30 June, 1994.
13th International Pig Veterinary Society (IPVS) Congress. Organized by: Faculty of Veterinary Science, Chulalongkorn University. Information and registration: Dr. Annop Kunavongkrit, Secretary of the 13th IPVS Congress, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330 (Tel.: +66.22520738, telefax +66.2.-2553910).

Oenkerk, The Netherlands
29 August - 7 October, 1994.
International course on: "Modern dairy farmmanagement". Organized by: Dairy Training Centre Friesland. Programme: milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics and Dutch dairy industry. Course fee including board and loging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands. Tel.: +31.5103.1562, telefax: +31.-5103.1628.

EQUATOR

VOLUME 5, NO. 4/5 NEWSLETTER ON VETERINARY ASPECTS IF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

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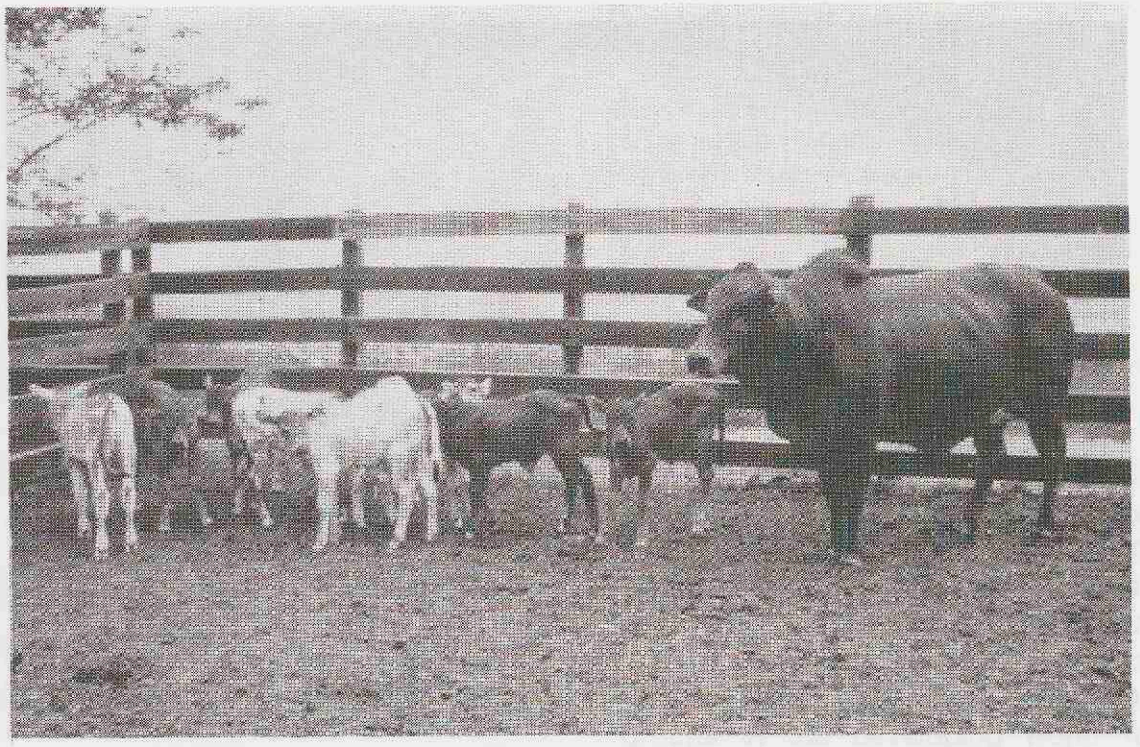
August, 1993

from the editor

As announced, this issue of EQUATOR contains numbers 4 and 5. In November this year's last issue will be published in the Dutch language.
Readers may have wondered where the title of the first part of the interview with Dr. Jack Doyle of ILRAD, came from. They will find the solution in this issue.
Dr. Doyle states that the western countries have enough knowledge and know-how to solve, at least for the coming ten years, the problems resulting from the fast increasing demand for food in the developing world. We have to use the best of nowadays technology to meet with the growing demand for protein in third world countries. Indispensable elements are transfer of knowledge and the formation and strengthening of networks of research groups in government institutions, universities and private enterprise all over the world. But, how can one operate looking at the reality of vast numbers of refugees in many parts of the world? A healthy livestock production sector requires a sound and functioning infrastructure. As long as millions of farmers are not able to work on the land and livestock is being slaughtered in civil wars, all efforts beside emergency aid will be wasted in the "war zones".

We bring you news from East Asia. Two representatives from Utrecht University's Faculty of Veterinary Medicine went to Thailand to discuss possibilities for future activities and to sign a memorandum of understanding on veterinary education and research co-operation between the Ministry of University Affairs of Thailand and the Faculty of Veterinary Medicine of Utrecht University in the Netherlands. The general objective of the memorandum is to strengthen and broaden the scientific co-operation between the Thai and Dutch veterinary faculties. No doubt you will read more about this new link in future issues of EQUATOR.



Boran cow with her offspring obtained through embryo transfer. The study of the bovine genome is based on DNA obtained from the F1 and F2 generations of N'Dama x Boran crossbreds produced at ILRAD (photo: ILRAD)

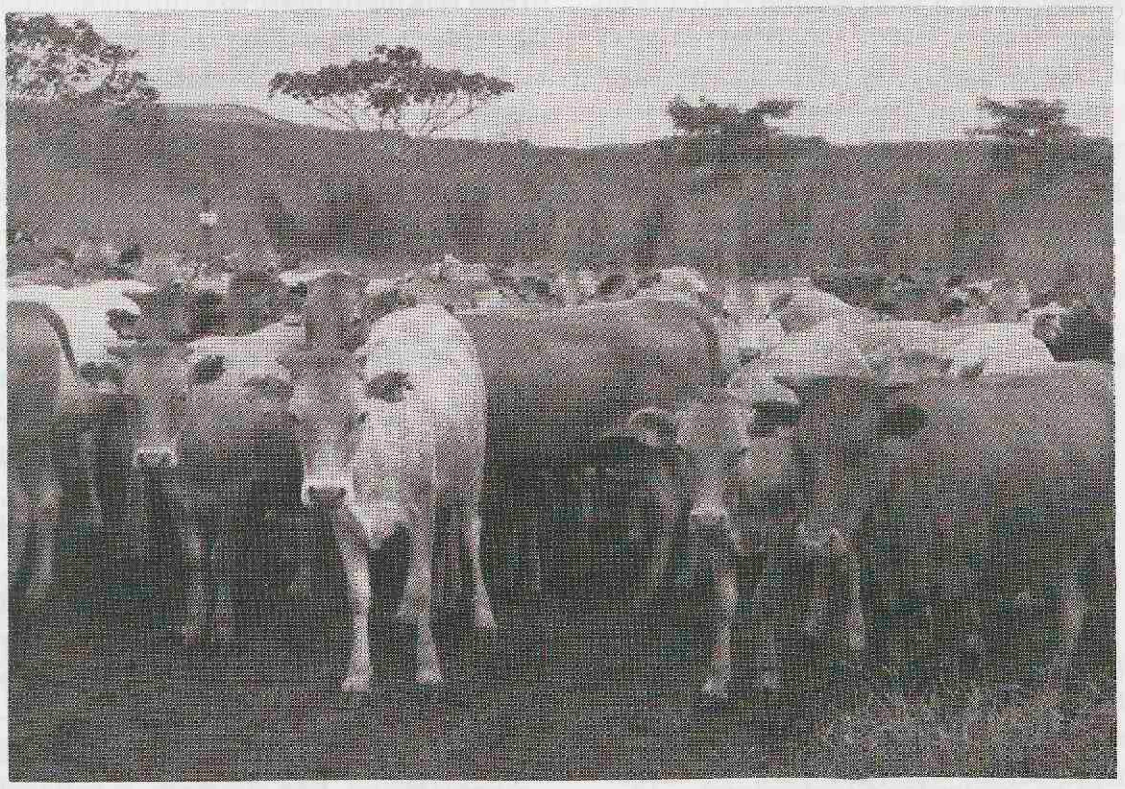
in 2 - 3 years from now, more likely 2 than 3 years. The collaboration with ILCA - our parallel work at looking at trypanotolerance in the field and applying conventional good quantitative genetics - allows you to marry both technologies. Now you can look at what quantitative genetics tells you in a production system environment and you can eventually marry that outcome to what your markers are starting to tell you about these various traits. And when these two are put together, there will be a substantial opportunity to breed trypanotolerant cattle for the production environment. Who is going to do it is a question of private/public sector capacities or anything else, but the technology will be there to do it.

I participated in a workshop of the Kenya National Research Organization and they were completely confident of the fact that these opportunities were coming up. They were brushing up their quantitative genetics to marry to the molecular genetics to improve their production systems, not in trypanotolerant cattle, but in milk and meat. So this is the way we should look as we transfer technology to developing countries. We need to make sure they have the already established technologies well at hand. Because if they don't have competence in quantitative genetics, they cannot use the new genetics. The new genetics do not solve that problem, but if they have got both they can make large advances in selective breeding. And if you ally that with the technology of embryo transfer and the rest, there is a unique opportunity to go and do something practical about expanding the number of improved productive cattle.

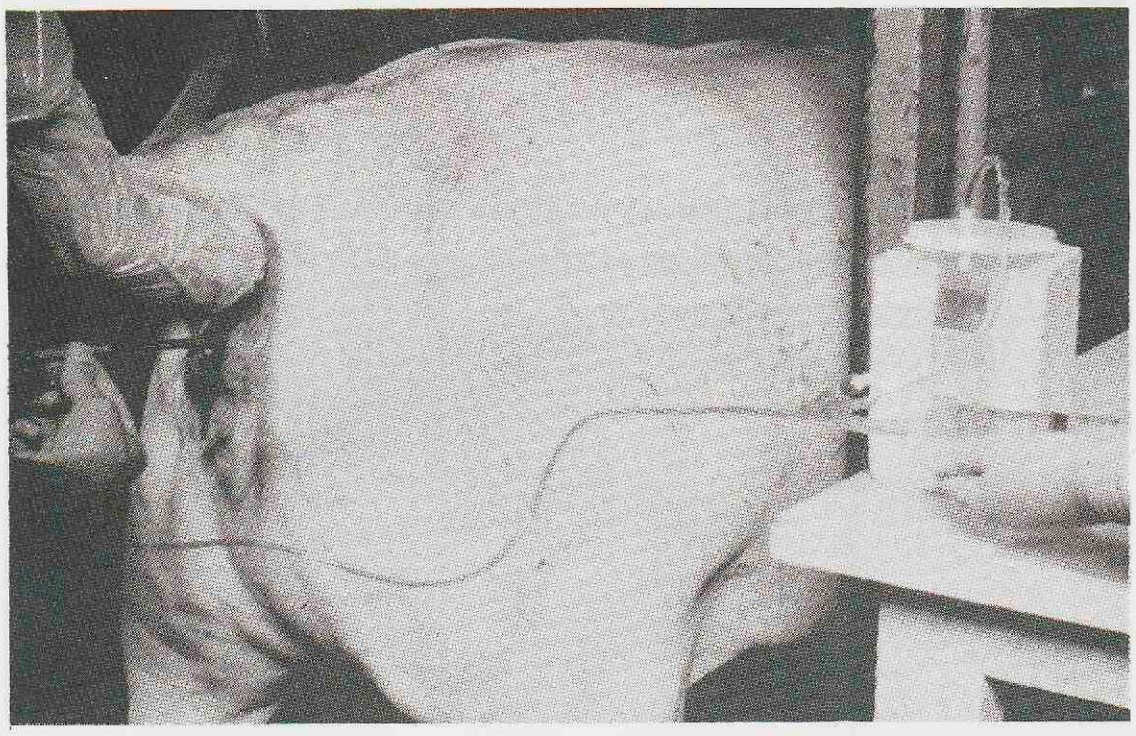
At the moment people are trying to put money into artificial insemination (A.I.). They say: "We have to have an A.I. facility". "We" is a very dubious noun to use there. Actually, they should really look at the problem and say: "Okay, if we need increased productivity by an x- amount in this period of time, so that people won't starve, what technologies will be available and how do we use them?" We just got to go and do it! Not say people can't do it. You will not get a solution in time by A.I. and you will not get it by conventional breeding, so you have got to use the new technology.

How will this affect the farmer. How will the farmer get hold of these improved animals. Do you think there is a way to introduce trypanotolerant livestock into other areas of Africa, not only West Africa?

The previous president of Tanzania once asked his head of veterinary services and livestock production, long before he retired, how he could have trypanotolerant animals in Tanzania. And really the only thing that stopped him was the animal health regulation on import of live animals. Embryo transfer solves that problem. And there will be an increasing move to the private sector. Remember the cooperatives are private sector. So, a group of farmers, getting together, that technology will be there and will spill down from public to private. It will be demand driven by the private sector. It got to be private sector to



Trypanotolerant livestock in Gabon; descendants of stock that originated from Senegal. Animal health regulations prohibit such movements into e.g. Tanzania. Embryo transfer opens new ways for the introduction of more productive and/or disease resistant livestock (photo: Paling)



The uterus of a N'Dama cow is flushed to remove the embryos which are only a few days old and not yet fixed inside. Subsequently each embryo is implanted in a foster mother cow (photo: ILRAD)

succeed. Because we know if you put large investments into the public sector for things like this, in Africa or elsewhere, they generally don't work.

FAO has also some ideas getting their hands on it...

Yes, but don't confuse these FAO initiatives with the FAO initiative on genetic conservation which is laudable and for which these maps and these techniques make it much more simple. I think that those of us who are vets know the definition of phenotype and genotype. An example: ILCA was going to look at trypanotolerance in sheep. When you go to West Africa, you find a whole lot of sheep called a whole lot of different names. But you don't actually know if they are genetically different. The new technologies now allow you to check that out with precision. The converse is also true, that things that look the same may as a matter of fact be importantly different. So there are two aspects to genetic technology. Firstly, you can start to accurately identify your indigenous livestock and conserve them with reason and purpose and secondly you can use them to improve the productivity. I am not even talking of gene transfer and transgenics. We are talking about reasonable technology.

One of the things that is going to drive the public sector faster than people realise is that government policies have changed their pricing structures into virtually open markets and cross-border markets. This is, for the first time, putting real money in the hands of the farmer. The farmer will use this to develop, this is the key change that will make agriculture work. When the farmers were not getting a real return on their investments, because the governments were protecting the urban populations, the farmers had no incentive to invest or experiment and that is the reason for our failures over the last 20 years. If the farmers want to invest, we have to give them something that is going to return their investment and give them more money to invest and hence you increase agriculture productivity.

There is quite some talk about the "dumping" by the EC of meat in West Africa and the negative effects it has on livestock production in this area. In fact, does this not deprive the farmers of a real income?

That is largely coming to an end. If the GATT negotiations ultimately succeed, a lot of these "little things", which were important, will disappear over time. A real market situation, where the farmer is starting to see a return for his investment and can invest more, is the issue. Also, the different levels of currencies in Africa cause problems, the CFA franc in particular. People are now giving their attention to that as well. The real key is now more and more that the farmer has money and a vote. That means something. These two opportunities must not be missed if we want to try to avoid the malnutrition economy trap. And my part in this is to get the technology to them. It does not need to be yesterday's technology.

As you mentioned earlier on, money for research is limited. Subsequently, networks are being formed of institutes having the same objectives, studying the same disease, or having the same problems as their goal for research. Is ILRAD participating in this type of networks?

Yes, ILRAD always has: With ILCA and the national organizations of subsaharan Africa in the trypanotolerance network, with FAO on infection and treatment immunization against ECF in the countries affected, that is now extended to other tick-borne diseases, and with IAEA in Vienna on the new diagnostics in animal and human health. We see ourselves as people whose comparative advantage is to make tools. What is really the end of the research process is knowledge and technology. There are many other much larger institutions in the world whose job it is to give those tools to people. And we will work in partnership with them. I think this type of collaboration needs to be much more encouraged in all sorts of aspects of development work than currently is.

Is ILRAD also participating in fund raising? A network often has more access to funds then individual institutes.

That is a very complex question. The answer is depending on where you want to start. If you start a research network in strategic research, one of the reasons you start it, is to bring coherence to the programme; but also to bring in the funding your partners will get from sources that are not available to ILRAD.
When you come down towards the farmer level in networking it becomes probably less cost effective for a Consultative Group (CG) institute to do this then for a regional organization, like SADCC or the other regional organizations which exist in the world. They are closer to the problem and they can select who they want their partners to be. I prefer to see the money for networks in functional regional organizations or national organizations. For example, a national

ILRAD IS ONE OF THE COLOURS ON THE PALLET

Real money in the hands of farmers; A key change in tropical agriculture

Interview with Dr. Jack Doyle, Deputy Director of ILRAD (part 2)

In May this year Dr. Jack Doyle, Deputy Director of the International Laboratory for Research on Animal Diseases (ILRAD), based at Nairobi Kenya, was interviewed by the editors of EQUATOR. The first part of the interview was published in EQUATOR, volume 5, no. 3 of June, 1993. Dr. Doyle has been involved with research and management at ILRAD for almost 20 years. ILRAD was established in 1973 with the mandate "To conduct intensive research leading to improved control of important livestock diseases in developing countries, particular in Africa". During this period ILRAD has developed into one of the leading research institutes on livestock diseases in the world. In his capacity as Director of Research of ILRAD, a function Dr. Doyle occupied from 1983 to 1991, he developed and directed ILRAD's research programmes on theileriosis and trypanosomiasis, which have not only produced major scientific breakthroughs in the fundamental knowledge of the parasites and the diseases they cause, but also in the comprehension of the bovine immune system and defence mechanisms in general.
Of course often questions are asked like: "What has all this research contributed to livestock production in Africa and to the income of livestock holder?" and "When will there be adequate, sustainable and economical methods of control for diseases that obstruct livestock development in Africa?" In Dr. Doyle's view, the transfer of new technologies, privatization and money to invest for the farmers are key words in the process of increasing animal production in developing countries.
What follows is the second part of the interview with Dr. Doyle.

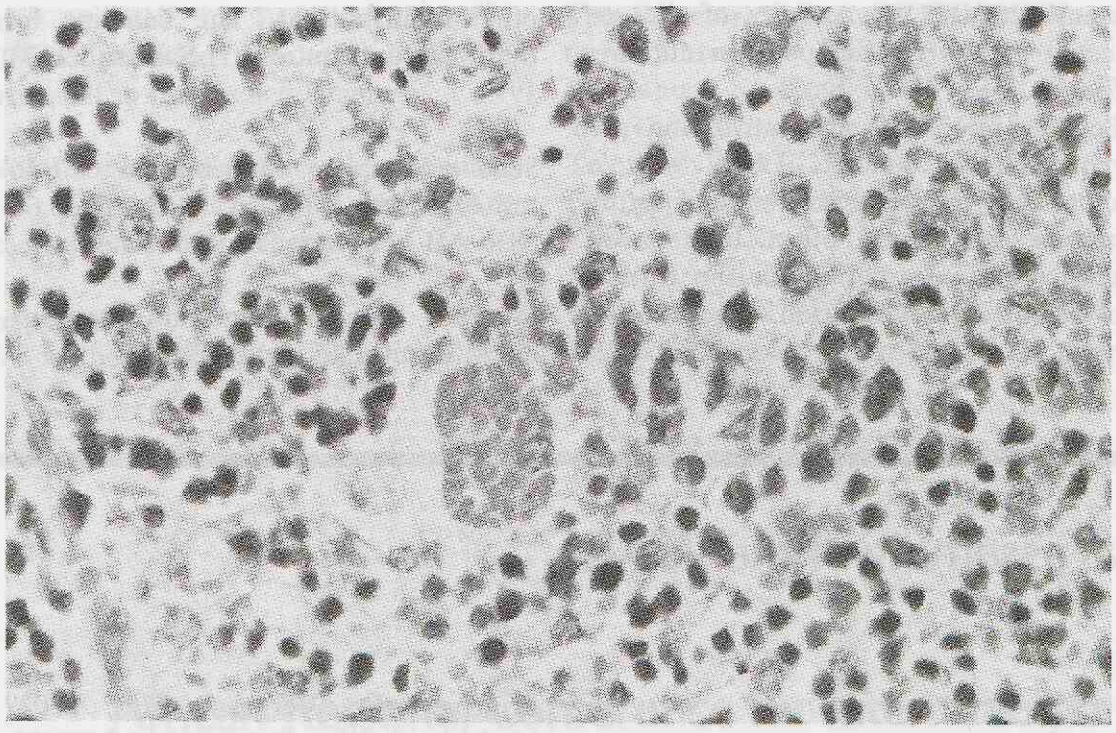
Trypanosomiasis has been studied at ILRAD from 1973 onwards. A lot has been discovered about the biology of the parasite, but no vaccine has been developed yet. Will there be a vaccine? Will ILRAD continue to look for it or has the interest moved towards improvement of chemotherapy and the use of trypanotolerance?

What the institute is doing, is adopting a far more logical approach to what we term candidate antigens. I think the interesting approach is: "Can we find parasite antigens that are actually involved in pathogenesis of disease, the interaction of these antigens with macrophages or other cells in the body, or the haemapoetic system." By looking at these and the pathogenesis of trypanosomiasis, we can link the parasite, its products and its end effects, and then look if there is an antigen out there that may be able to immunize with, but that won't stop disease. And let the animal, because it has no longer a disease, take care of the parasite anyway. The malaria example is a good one to follow. We are doing that because we are so heavily involved in molecular pathology and molecular physiology. We have a very good understanding of the parasites, so if these leads appear, they will be followed up. But it is not cheap to do so. That is the other point you have to keep in mind. You cannot chase any trypanosome antigen on a limited budget.

We have been able to move on from the delineation of the bovine immune system, which is basically where ILRAD paid its price to the world, because nobody else was able to do that. We are now looking at cytokines and macrophages, the haemapoetic system and the lymphoid system and its stem cells and organization. When we know the organization, we can see where it is perturbed. It is very difficult to know what is perturbed if you don't know what normality looks like. But we are well along that path, I would say that the second most important thing that ILRAD is doing in ruminant physiology is to look at the cytokines and their interactions and to see how all these systems interact among themselves and which diseases are a manifestation of perturbation of physiology. We now really have the tools to go back and look where this perturbation occurs. It is a long term process, you never know when it will pop out of the woodwork. That is the nature of it. But that work is not specifically geared at looking at antigens; it is geared partially at the mechanism of trypanotolerance and looking at genetics of antigen production as well. So it is all incorporated and if a vaccine comes out, it will spin out of that.

You mentioned trypanotolerance. For the last decade, this is an area of research at ILRAD. How is the progress and do you see ways that it can be exploited to increase livestock production in Africa in the near future?

The answer to that is clearly yes. The third thing that ILRAD has done is to collaborate on the study of the bovine genome. As a matter of fact, we are one of only three institutions that are able to breed the F1 and F2 generations required and we make this DNA available to all the other people who are looking at it. The way the technology is advancing, a workable physical map of the genome will be around



During infection with trypanosomes, macrophages may be seen in the spleen that are actively phagocytosing the animals own erythrocytes. ILRAD studies the role that parasite antigens play in such processes. Eventually this may lead to the identification of antigens to immunize with, preventing these pathogenic effects but not stopping the infection (photo: collection Murray)

organization with a programme to control calf diseases would not come to ILRAD, because we could not help them. Utrecht University could, with their lovely new molecular diagnostics. But if it was tick-borne disease then the problem would come to us, because we are more comparative then Utrecht University. My father is an artist. Now, I always use this similarity: The regional organizations should be able to lift the colour of the palet as they wish. ILRAD wants to be one of the colours on the palet. It is very important because production systems have to change so rapidly that what is good today will not be good tomorrow. So you should not lock it in. You should be able to react to changing situations.

Universities in Europe, like Utrecht University, have limited funds but a very strong commitment to participate in research, basic and applied if possible, for developing countries. How does ILRAD value these contacts and do you see any scope for collaboration in the future?

Yes, I think in strategic research ILRAD's critical role is not to do the basic research at all, but to take basic research and apply it strategically to problems of the developing world, which are very precisely defined. If people do not do this basic strategic research in the developed world, we can not transfer it to the developing world. I think there are two paths happening. One is the necessity for developed countries to support basic strategic research at their biological agricultural faculties and secondly we have got to get better in applying the technology we have already generated in the developed world and apply it to problems in the developing world. That requires another infrastructure, maybe networks, but maybe something bigger. If you are looking for real increases in agricultural productivity in the next 5 to 10 years, there is probably more than enough technology in the developed world for any situation. But we are not finding a way of focusing it on the problems in the developing world. We are starting to see in Europe that the universities are getting together through the EC-type of collaborative organization. We need to see better how we can start to link these, not only with the national agricultural research systems, but more in particular with the universities and perhaps some private sector groups in the developing world to solve problems. I think the biggest gap we still have is between the potential and wish in the developed world. We don't have a vehicle to transfer it with efficiency to the farmer in the developing world who needs it. That is one thing we all should think about.

The overall problem is that even in Europe, the right hand has trouble knowing what the left hand is doing. What we must avoid is creating new vehicles and re-doing research that is already done. We can use that money better in the countries themselves to take the technology by improving their universities, their veterinary and agricultural skills. May be in the form of a Worldbank project, may be UNEP or FAO have a role to play; the consultative group is not the ultimate vehicle for it.

Robert Paling
Jean de Gooijer

Call for papers on rural peoples' biotechnology

The Information Centre for Low-External-Input and Sustainable Agriculture (ILEIA) is looking for papers on how rural peoples' biotechnology can be improved. ILEIA especially welcomes case studies on farmers' practices and appropriate farm technologies developed by research and development agencies in the domains of:

- production of biofertilizers and biopesticides;
- ethnoveterinary practices and indigenous human health care;
- farm techniques for the genetic improvement of crops and livestock;
- processing of agricultural produces.

It is further interested in innovative roles of farmers in generating, maintaining and further developing of biotechnologies.
These papers, together with the winning articles of a contest held by ILEIA earlier this year, will be published. The publication will be made available for all readers of the ILEIA Newsletter and the Biotechnology and Development MONITOR. Authors of the selected papers will be paid an author's fee.
Persons interested in contributing are requested to contact ILEIA with a short description of the kind of information they could offer. ILEIA will send more information on the format of the specific publication, procedure of publication and the relationship with other contributions. The deadline for the final contributions is September 30, 1993.

Send proposal or contribution to: Bertus Haverkort, ILEIA, P.O. Box 64, 3830 AB Leusden, The Netherlands.

(Source: Biotechnology and Development Monitor 15, June, 1993).

News from the 45th general assembly of the WVA

The 45th General Assembly of the World Veterinary Association (WVA) was held on 29th May, 1993 in Paris. During this meeting, proposals presented by Prof. Dr. C. Pilet, chairman of the permanent WVA Development Committee were accepted. These proposals read as follows:

- To ask the presidents of the national member associations to raise funds for the WVA Development fund.
- To send a letter to developing countries soliciting ideas for projects.
- To ask national member associations to place an advertisement in the veterinary journals in their respective countries, offering retired veterinarians and students the opportunity to work in developing countries as volunteers in return for payment of travel and subsistence expenses as well as insurance coverage.

For more information and submission of project proposal please contact the Secretariat of the WVA (address: c/ Principe de Vergara 276, 28027 Madrid, Spain; Tel.: +34.1.3593022, telefax: +34.1.3593021). Contact can also be made with Dr. F.O. Ayanwale, Vice-President (Africa) of the WVA and member of the WVA Development Committee (Nigerian Veterinary Medical Association, c/o Dept. of Veterinary Public Health and Preventive Medicine, University of Ibadan, Ibadan, Nigeria; Tel.: +234.22.400550-614 (65 lines).

(Source: World Veterinary Association Bulletin 10, nr.1, June-December 1993)

The University of Edinburgh, Centre for Tropical Veterinary Medicine Diploma/MSc Postgraduate courses

The following one year courses are available which lead to a Diploma/ MSc.

Tropical Veterinary Medicine
This course is designed for field veterinarians aiming at the senior and middle ranks of veterinary services in developing countries. It deals with the prevention and control of animal diseases at regional and national levels and has a strong epidemiological component. Related aspects of animal production and veterinary public health are also covered. Dissertation projects are normally undertaken at the CTVM but some students undertake investigations in the field in a tropical country.

Tropical Veterinary Science
The course is designed for veterinary graduates who wish to acquire a working knowledge of modern laboratory-based diagnostic techniques and research methods involved in the investigation of animal health problems in developing countries at national, regional and herd levels. The dissertation research project covers approximately 5 months of the course and is normally undertaken at the CTVM or associated institutes in Edinburgh, but may involve research in the field in a tropical country.

Tropical Animal Production and Health
This course, which is organized in conjunction with the University's Institute of Ecology and Resource Management, is open to agricultural and veterinary graduates intending to specialise in animal production in developing countries. It provides a comprehensive review of the main constraints to animal production likely to be encountered in these countries with an indication of how these may be overcome. Dissertation projects are normally undertaken at the CTVM but some students undertake investigations in the field in a tropical country.

Students applying for the TAPH course have the option of studying for the first

three months in Paris at EMVT-CIRAD provided they are sufficiently proficient in the French language.

With all the above courses it is possible to extend the training to two years leading to an MPhil degree.

Information
For further information please contact: The Director, Centre for Tropical Veterinary Medicine, Easter Bush, Roslin, Midlothian, Scotland EH25 9RG. Tel: +44.31.445.2001, Fax: +44.31.445.5099, Telex: UNIVED G 727442.
For application forms please contact: The Dean, Royal (Dick) School of Veterinary Studies, Summerhall, Edinburgh, Scotland EH9 1 QH. Tel: +44.-31.6506138, Fax: +44.31.6677938, Telex: UNIVED G 727442.

(Source: The Veterinary Record, August 7, 1993)

ANNOUNCEMENT

African Regional Conference for International Cooperation on Safety in Biotechnology with specific attention to implementation

11 - 14 October, 1993, Harare, Zimbabwe, (Holiday Inn Hotel)

Background
In Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED, Rio de Janeiro, June 1992), one chapter is specifically dedicated to "Environmentally sound management of biotechnology". One of the objectives is to ensure safety in biotechnology development and application through international agreement on principles for safety in biotechnology by international cooperation. Governments agreed to undertake the necessary activities. In this context the Research Council of Zimbabwe and the Ministry of Housing, Physical Planning and Environment (VROM) and the Directorate General for International Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands, decided to organize an "African Regional Conference on Safety in Biotechnology". MEBO environmental consultancy has been assigned to take care of the practical organization and preparations of this conference.

Purpose
The purpose of the conference is to contribute to international cooperation on safety in biotechnology, by making available existing safety procedures and adapting these to the specific needs of the countries of eastern and southern Africa, with particular reference to the acquisition of the necessary expertise to implement safety procedures.

Scope
The scope of the conference entails:
- Scientific aspects related to the contained use and release into the environment of genetically modified organisms, risk assessment and risk management and monitoring;
- Regulatory aspects like the scope of regulations and guidelines, existing and new legislation, maintenance, public participation and financial and human resources;
- International and regional cooperation through information exchange and networking.

The options for adaptation of available regulations and/or guidelines to specific local needs will be actively discussed. Case studies will be used to develop expertise of participants in the evaluation of field trial proposals.

Participation
A maximum of 50 representatives from the following African countries can be accommodated: Angola, Botswana, Kenya, Malawi, Mozambique, Namibia, Tanzania, Uganda, Zambia and Zimbabwe. In addition, representatives of SACCAR and a maximum of 20 international experts to contribute to the conference, will be invited. Participants should be involved or expected to become involved in biosafety issues, either at the policy level (ministries, regulatory bodies), as researchers (universities, institutes) or at the user's level (industry, consumers, farmers). For the selected applicants travel and accommodation will be arranged.

Information
More information and application forms can be obtained from: MEBO Environmental Consultancy, Mr. P. Schenkelaars, P.O. Box 38, 2250 AA Voorschoten, The Netherlands (Tel.: +31.71.611298, telefax: +31.71.617791).

VACANCIES INTERNATIONAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from "Vacatureblad Internationale Samenwerking", "Tijdschrift voor Diergeneeskunde", "Veterinary Record" and "INTRO vacatures", there will be room for personnel advertisements. For further information one is requested to apply directly to the institution or company.

UNIVERSITY OF CALIFORNIA

Background:
The University of California (Davis) Small Ruminant Collaborative Research Support Programme (SR-

CRSP), is a multi-institutional research and training programme to improve sheep, goat, llama and alpaca production in several developing countries. The Small Ruminant CRSP has a vacancy for:

SR-CRSP PROGRAMME DIRECTOR / DAVIS, U.S.A.

Duties:
The Programme Director has executive, technical and fiscal management responsibilities for the Title XII-funded SR-CRSP. The Director responds to the Administrative Council, Board of Directors and the Technical Committee (comprised of principal investigators) and reports to the Vice Chancellor-Research at the University of California (Davis).
Major responsibilities include:

- Programmatic and administrative leadership;
- Representation of the participating institutions in official contacts with overseas co-operating institutions and with the Board for International Food and Agricultural Development and Economic Co-operation and the United States Agency for International Development;
- Oversight of management office staff and administrative units overseas staff;
- Administration of programme training;
- Assurance of appropriate programme review;
- Coordination of the reporting and the publishing of information about the programme;
- Other duties required by the University of California (Davis) or delegated by the SR-CRSP Administrative Council or Board of Directors.

Qualifications:
PhD or equivalent degree related to agricultural development. Extensive administrative experience; demonstrated research achievement; direct experience with the U.S. Land Grant University system; interest and experience in international agricultural development; experience with CRSP and USAID is highly desirable.
Ability to work with a multidisciplinary team of scientists and willingness to undertake extensive national and international travel.

Conditions:
Salary is commensurate with qualifications and experience and consistent with University of California (Davis) guidelines. The University of California is an equal opportunity/affirmative action employer. The present funding extends through 30 September, 1995. A proposal to extend funding to the year 2000 will be submitted.

Location:
University of California, Davis, U.S.A.

Application:
Curriculum vitae, summary of relevant qualifications and experience and names of four referees should be forwarded to: Dr. Barbara D. Webster, Associate Vice Chancellor-Research, University of California, 424 Second St., Suite B, Davis, CA 95616-8700. Closing date: 30 September, 1993, or until a suitable candidate is selected.

(Source: INTRO Vacatures no. 31, 6 August, 1993).

BIC NEWS

UTRECHT-THAILAND LINK

MEMORANDUM OF UNDERSTANDING ON EDUCATION SIGNED IN BANGKOK

In April, 1992, a mission from the Thai Ministry of University Affairs visited various veterinary faculties in Europe and the United States, including the faculty at Utrecht University. The aim of this high level mission was to select veterinary faculties that were of interest for the Thai faculties to start a more intensive programme of collaboration. As a follow up of the visit to Utrecht, two professors visited Thailand in July 1993. The next step in the building of a link between the Thai and Utrecht faculties was set on the 27th of July, 1993, when a "Memorandum of Understanding on veterinary education and research co-operation" was signed in Bangkok by the representatives of the Faculty of Veterinary Medicine of Utrecht University and the Thai Ministry of University Affairs.

Veterinary medicine in Thailand
Recently the state of the art in Thai veterinary medicine was evaluated. Two conclusions were drawn. There is a deficit in veterinarians, especially in the North and North East of Thailand and secondly the quality of the veterinarians has to be improved and their expertise enlarged. At this moment there are three veterinary faculties in Thailand, namely at the Chulalongkorn and Katsetsart Universities in Bangkok and at the Khon Kaen University in the North East of the country. Both the faculties in Bangkok are located in the city and therefore have few large animal patients. To compensate the small number of patients both faculties have a clinic in a rural area, where students in the last phase of their education spend

two days a week. The volume of small animal patients is high, however, most of the illnesses involve fractures.

Actions for improvement

The Ministry of University Affairs has developed a policy to meet with these challenges. Firstly, the three existing institutions will admit considerably more first-year students and secondly, in the period 1993 - 1998 two new veterinary faculties will be established, one at the University of Chang Mai in the North of Thailand and one at the University of Songklha in the South. Furthermore this Ministry finances a post graduate training and exchange programme. This programme will aim at the training of young staff members to a higher academic level (MSc or PhD) and at creating opportunities for senior staff to visit faculties abroad and start collaborative research projects.

The Memorandum

The now signed Memorandum of Understanding formally arranges the possibilities for cooperation between the three Thai veterinary faculties and the Utrecht veterinary faculty. This agreement is of major importance for the Utrecht faculty as it lays the basis for the development of close links with sister faculties in Asia, complementing the existing important links with faculties in other parts of the world, like Harare and Maputo in Africa and Heredia in Latin America. Depending on the priorities still to be decided upon by the Thai counterparts, Utrecht's Faculty of Veterinary Medicine sees opportunities to collaborate in the field of clinical diagnosis, laboratory diagnostics, diagnostic tests for infectious diseases and tests for nutritional parameters. Also the possibilities for joint research will be looked into.

Jean de Gooijer

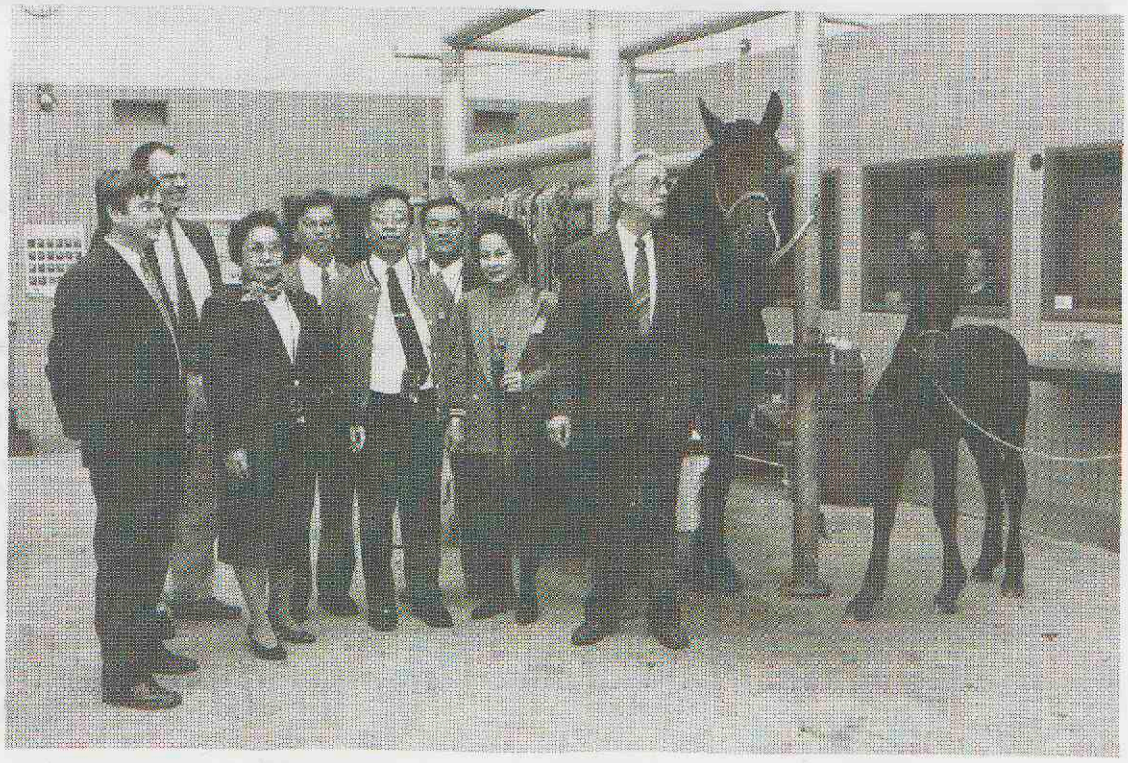
Special issue of "The Veterinary Quarterly" for Prof. dr. D. Zwart

On the occasion of his retirement as professor in tropical and protozoan diseases at the Faculty of Veterinary Medicine of Utrecht University in July, 1992, Prof. Dr. D. Zwart was offered a symbolic present: an issue of "The Veterinary Quarterly", dedicated to issues and subjects he closely identified himself with during recent years. This special issue of The Veterinary Quarterly[1] was published in July, 1993 (Vol. 15 no.2/1993, pp. 1-80). The authors are post doctorals and colleagues of Professor Zwart. Attention is being paid to developmental and policy issues in articles by Schilhorn van Veen and Gryseels, reflecting Prof. Zwart's close links with the CGIAR and especially the institutes in Africa (ILRAD and ILCA) and his continuous concern for the development and problems of the veterinary services in Africa and more recently for the privatization of the veterinary profession in this region. His scientific guidance contributed to a good number of PhD theses on tropical veterinary medicine at Utrecht University. Some of his post doctorals remained involved in tropical veterinary science. A selection of "up-to-date" topics was made and this resulted in three review articles on: tickborne diseases (Uilenberg *et al.*), wildlife disease research (Grootenhuis and Olubayo) and trypanotolerance (Paling and Dwinger). Though, not only because of the full page superb colour photograph of Dick Zwart, is this issue a memorable publication. The full titles and authors are included in the section "Recent Publications" of this issue of EQUATOR.

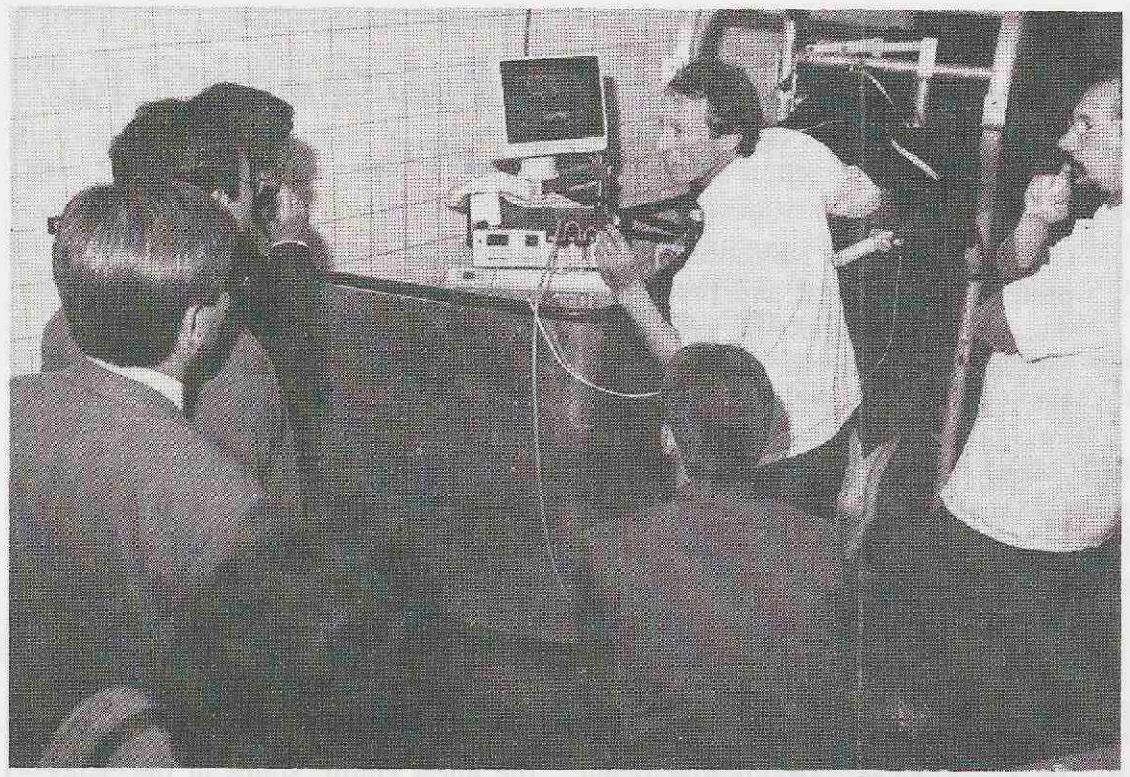
As Prof. Dr. A.W.C.A. Cornelissen, the guest editor, states in the "Editorial" of the special issue: "For 26 years Dick Zwart has been professor in Tropical and Protozoal Diseases. During that period he and his staff trained many veterinary students as well as veterinarians in specific aspects of tropical diseases. The veterinary community will, due to the retirement of Dick Zwart, miss one of their eminent teachers in this specific field of veterinary medicine".

R.W. Paling

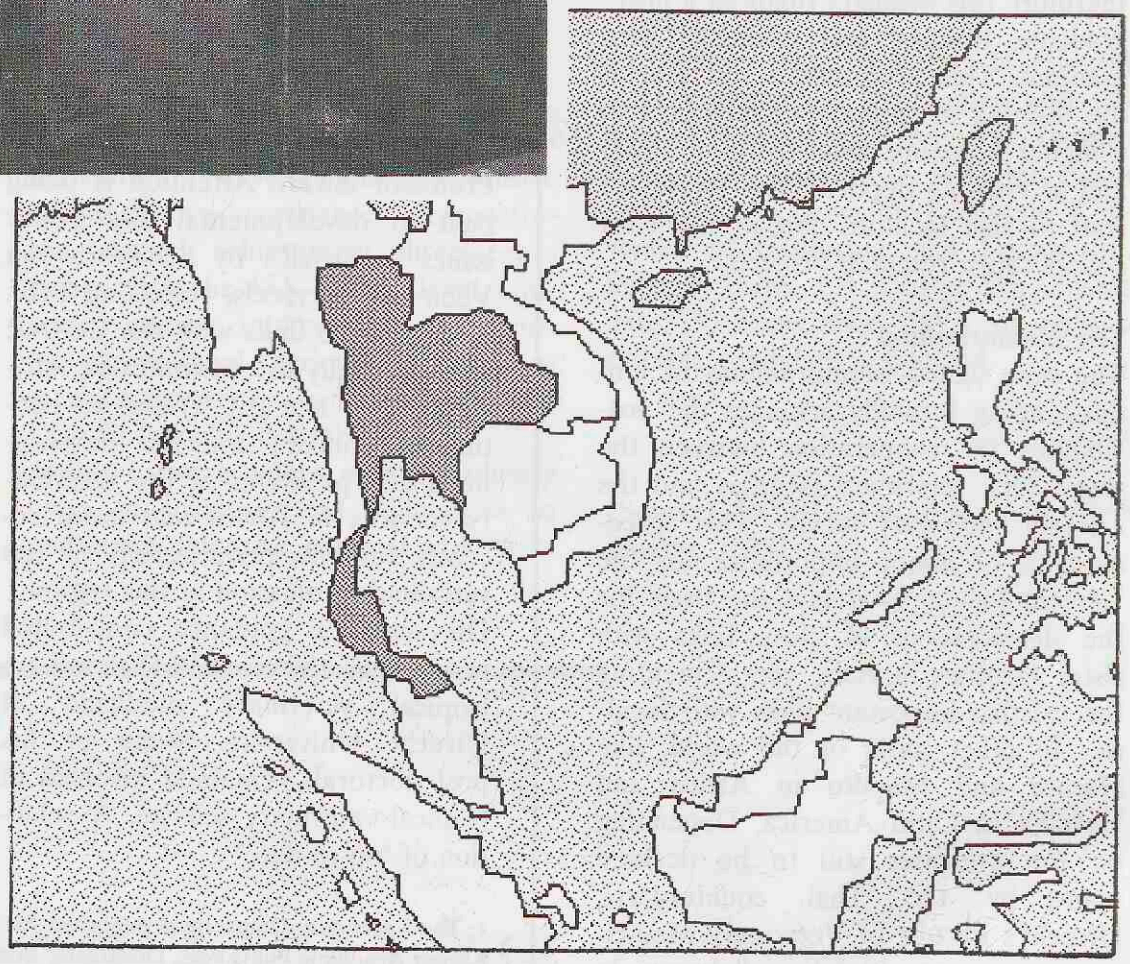
1. The Veterinary Quarterly is published for the Royal Netherlands Veterinary Association by Kluwer Academic Publishers, Dordrecht, Boston, London, issn 0165-2176.



In April, 1992, a mission from the Thai Ministry of University Affairs visited the veterinary faculty at Utrecht University. Prof. Willemse showed the guests the facilities of the clinic for equine gynaecology (photo: Post)



Dr. Maarten Pieterse demonstrated for the Thai guests the recently developed technique for the collection of bovine egg cells under ultrasound guidance (photo: Post)



RECENT PUBLICATIONS (12)

The section RECENT PUBLICATIONS is included in the English issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in the Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientists working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office (Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht, The Netherlands).

ANIMAL HEALTH

Grootenhuis, J.G. and Olubayo, R.O. (1993). Disease research in the wildlife livestock interface in Kenya. The Veterinary Quarterly 15: 55-59.

Kolk, J.H. van der, Wijden, M.W. van der en Jongejan, F. (1993). Equine granulocytaire ehrlichiosis (EGE), een overzicht. Tijdschrift voor Diergeneeskunde 118, 227-229.

Leeflang, P. (1993). Some observations on ethnoveterinary medicine in northern Nigeria. The Veterinary Quarterly 15: 72-73.

Mulder, J. (1993). Veterinary services in Africa. The Veterinary Quarterly 15: 79-80.

Obwolo, M.J. and Zwart, P. (1993). Prevalence of *Salmonella* in the intestinal tracts of farm-reared crocodiles (*Crocodylus niloticus*) in Zimbabwe. Journal of Zoo and Wildlife Medicine 24: 175-176.

Schilhorn van Veen, T.W. (1993). The present and future veterinary practitioners in the tropics. The Veterinary Quarterly 15: 43-47.

LIVESTOCK PRODUCTION

Dieleman, S.J., Colenbrander, B., Booman, P. and Lende, T. van der. (Eds.) (1992). Clinical trends and basic research in animal reproduction. Proceedings of the 12th International congress on animal reproduction. Amsterdam, 23-27 August, 1992. Elsevier, The Hague, pp. -466.

Gryseels, G. (1993). Setting priorities and strategies for livestock research in the CGIAR. The Veterinary Quarterly 15: 68-71.

Provost, A. and Uilenberg, G. (1992). Part VI. Beef production in semi-arid and tropical zones. Chapter 21. Diseases as a limiting factor. In: World Animal Science. C5. Beef cattle production. Eds. R. Jarrige and C. Beranger. Elsevier, The Hague. pp. 395-418.

Zwart, D. (1992). Livestock production and health for sustainable agriculture and rural development. In: Livestock production and diseases in the tropics; Animal production as an essential part of sustainable agriculture. Proceedings of the 7th International Conference of Institutions of Tropical Veterinary Medicine. Yamoussoukro, Ivory Coast, 14-19 September, 1992, Eds. G. Tacher and L. Letenneur. Deutsche Stiftung für internationale Entwicklung, Feldafing, pp. 51-55.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Jongejan, F. (1992). Serodiagnosis of *Cowdria ruminantium*: current status. In: Recent developments in the control of anaplasmosis, babesiosis and cowdriosis. Proceedings of a workshop held at ILRAD Nairobi, Kenya, 13-15 May, 1991, Ed. T.T. Dolan. International Laboratory for Research on Animal Diseases, Nairobi, pp. 67-77.

Uilenberg, G. (1992). Veterinary significance of ticks and tick-borne diseases. In: Tick vector biology. Medical and veterinary aspects. Eds. B.H. Fivaz, T.N. Petney and I.G. Horak. Springer-Verlag, Berlin, pp. 23-33.

Uilenberg, G., Dobbelaere, D.A.E., Gee, A.L.W. de and Koch, H.T. (1993). Progress in research on tick-borne diseases: theileriosis and heartwater. The Veterinary Quarterly 15: 48-54.

Yunker, C.E., Mahan, S.M., Waghela, S.D., McGuire, T.C., Rurangirwa, F.R., Barbet, A.F. and Wassink, L.A. (1993). Detection of *Cowdria ruminantium* by means of a DNA probe, pCS20 in infected bont ticks, *Amblyomma hebraeum*, the major vector of heartwater in southern Africa. Epidemiology and Infection 110: 95-104.

TSETSE AND TRYPANOSOMIASIS

Dargie, J.D., Ooijen, C.J.P.G. and Plaizier, J.C.B. (1993). The FAO/IAEA DGIS coordinated research programmes on trypanosomiasis diagnosis and animal production in Africa. The Veterinary Quarterly 15: 75-78.

Paling, R.W. and Dwinger, R.H. (1993). Potential of trypanotolerance as a contribution to sustainable livestock production in tsetse affected Africa. The Veterinary Quarterly 15: 60-67.

CALENDAR 1993-1994

Kruger National Park, South Africa
14-18 September, 1993.
Symposium on: "The capture, care and management of threatened mammals". Organized by: The World Association of Wildlife Veterinarians and the Wildlife Group of the South African Veterinary Association. Information: Dr. Ian Epsie, 209, Clara Rerea, 18 Clara Street, Pretoria 0001 or Prof. J. van Heerden, P.O. Box 12900, Onderstepoort 0110 (Telefax: +27.12.5294281).

Utrecht, The Netherlands
24 September, 1993.
4th Symposium on "Tropical animal health and production. Recent developments in veterinary epidemiology". Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine. Programme: Introduction of epidemiological models; Surveys; Recent epidemiological studies. Location: Main building of the Faculty of Veterinary Medicine, Yalelaan 1, De Uithof, Utrecht. No registration fee. Information and registration: Office for International Cooperation, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30.532116, telefax: +31.30.531815).

Harare, Zimbabwe
11-14 October, 1993
"African regional conference for international cooperation on safety in biotechnology, with specific attention to implementation". Organized by the Research Council of Zimbabwe and the Ministry of Housing, Physical Planning and Environment (VROM) and the Directorate General International Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands. Programme: Biotechnology in Sub-Saharan Africa; Biotechnology in developed countries; Safety considerations associated with agricultural applications; An introduction to regional and national needs, constraints and priorities related to safety in biotechnology; Guidelines and regulations on safety in biotechnology: examples; Case studies in risk assessment. Information and application: P. Schenkelaar, MEBO Environmental Consultancy, P.O. Box 38, 2250 AA Voorschoten, The Netherlands (Tel.: +31-.71.611298. telefax: +31.71.617791).

Sydney, Australia
19-23 October, 1993
3rd International Congress on Medical and Applied Malacology. Organized by: Elizabeth Macarthur Agricultural Institute of the NSW Agriculture and the Australian Museum Sydney. Programme: Economic, medical and veterinary aspects of parasites transmitted by molluscs; Molluscs and agriculture; Aquaculture of molluscs. Registration: Phil H. Colman, Division of Invertebrate Zoology, Australian Museum, P.O. Box A285, Sydney South, NSW 2000 (Tel.: +61.2.-3398112, telefax: +61.2.3604350).

Bangkok, Thailand
24-29 October, 1993.
11th International Symposium of the World Association of Veterinary Food Hygienists (WAVFH). Organized by: The Thai Veterinary Medical Association under the Royal Patronage (TVMA). Information and registration: The Symposium Secretariat, Dr. Songkram Luangtongkum, 11th WAVFH Symposium, TVMA, 69/26 Soi Athanc Theatre, Phyathai Road, Bangkok 10400 (Tel.: +66.2.252.8773/7066, telefax: +66.2.-255.3910).

Arusha, Tanzania
30 November - 2 December, 1993
5th Panafrican Veterinary Association Congress in conjunction with the Regional Commonwealth and 11th Tanzanian Veterinary Association Scientific Conference. Theme: "Livestock production and the African environment". Topics: The impact of livestock husbandry systems on the environment; Science and technology for sustainable livestock development in Africa for the 21th century; Nutrition as a constraint to livestock production in Africa; The impact of diseases on livestock development in Africa; The role of private veterinary practice in enhancing livestock productivity; Improving animal production at village level. Information: Dr. P. Msolla, Chairman, Tanzanian Veterinary Association, P.O. Box 3021, Morogoro (Tel.: +255.56.3511, telefax scientific committee: +255.56.3177/3718/3259).

Oenkerk, The Netherlands
17 January - 15 July, 1994.
7th International course on "Dairy husbandry and milk processing". Organized by: Dairy Training Centre Friesland. Programme general part (11 weeks): Dairy development; animal husbandry; milk processing. Followed by specialized part (15 weeks) which has 3 options. Option 1 and 2: Dairy production (9 weeks) followed by either 6 weeks: Training and extension or by 6 weeks: Dairy farm management. Option 3: Small-scale milk processing. Course fee: Dfl. 4,500. Closing date for registration: 1 October, 1993. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands (Tel.: +31.5103.1562, telefax: +31.5103.1628).

Bangkok, Thailand
26-30 June, 1994.
13th International Pig Veterinary Society (IPVS) Congress. Organized by: Faculty of Veterinary Science, Chulalongkorn University. Information and registration: Dr. Annop Kunavongkrit, Secretary of the 13th IPVS Congress, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330 (Tel.: +66.22520738, telefax +66.2.-2553910).

Nairobi, Kenya
15-19 August, 1994
7th International Symposium on Veterinary Epidemiology and Economics. Information: The International Society for Veterinary Epidemiology and Economics (ISVEE), Centre for Disease Control, Mailstop G.33, Building 15 SSB 611, Atlanta, GA 30333, U.S.A. (Tel.: +1.404.6391050, telefax: +1.-404.6393296).

Oenkerk, The Netherlands
29 August - 7 October, 1994.
International course on: "Modern dairy farm management". Organized by: Dairy Training Centre Friesland. Programme: milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics and Dutch dairy industry. Course fee including board and lodging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands (Tel.: +31.5103.1562, telefax: +31.5103.1628).

EQUATOR

JAARGANG 5, NO 6 INFORMATIEBLAD OVER VETERINAIRE ASPECTEN VAN ONTWIKKELINGSSAMENWERKING

ISSN 0923-3334

EQUATOR is een uitgave van het Bureau Internationale Contacten van de Faculteit Diergeneeskunde.

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Indien onbestelbaar gaarne retour aan het redactie-adres.

November 1993

van de redactie

De Minister van Ontwikkelingssamenwerking wordt onder invloed van veranderende verhoudingen in de wereld en de daarmee gepaard gaande maatschappelijke problemen gedwongen zijn begroting aan te passen. Opvang en huisvesting van asielzoekers, hulp aan Oost-Europa, steeds andere extra posten "vervuilen" het budget voor ontwikkelingssamenwerking. Meer geld ook wordt uitgegeven aan zogenaamde noodhulp. En dus blijft er minder geld over voor structurele ontwikkelingsprojecten. Naar de mening van Drs. Joep Bolwerk hoeft dit geen probleem te zijn. Redactrice Merel Langelaar sprak met hem over zijn ervaringen in Nigeria, waar hij als *general manager* op een commerciële kippenfarm werkte. Naar zijn mening zijn ontwikkelingsprojecten op de manier zoals ze nu worden uitgevoerd zinloos in een land als Nigeria. Volgens hem gaat het land langzaam kapot aan corruptie en bureaucratie. Een commercieel bedrijf verschaft de werknemers tenminste een bescheiden inkomen.
Een ander verhaal vertelt Chris Bartels, een jonge dierenarts die na zijn afstuderen is gaan werken in Cambodja voor *Church World Service* , een Amerikaanse kerkelijke niet-gouvernementele organisatie (NGO). Hij probeert de dienstverlening door het Nationaal Veterinair Diagnostisch Laboratorium weer op poten te zetten. Maar, door jarenlang gebrek aan coördinatie lopen de hulporganisaties elkaar soms in de weg. Nu er langzaamaan weer sprake is van enig centraal gezag staan de grote internationale donoren als UNDP, WHO en de Wereldbank aan de voordeur van Phnom Penh. De NGO's zullen weer terugkeren naar waar ze naar de overtuiging van Chris Bartels thuishoren, namelijk het arme platteland.
Ook de wetenschap wordt niet vergeten in dit nummer. Nadat de lokale vakpers in het Tijdschrift voor Diergeneeskunde en de BRRTUP al verslag heeft gedaan van het recent in Utrecht georganiseerde 4e internationale symposium "Tropical Animal Health and Production" kunnen nu ook onze internationale lezers zich op de hoogte stellen. U vindt in deze EQUATOR een overzicht van wat er dit jaar tijdens het zogenaamde "tropensymposium" te vernemen viel. Sprekers uit Nederland, Duitsland, Costa Rica, Zimbabwe en de Verenigde Staten belichtten het thema "epidemiologie" van verschillende kanten. Prof. Dr. A. Brand, de voorzitter van het organiserend comité, concludeerde in zijn epiloog dat een epidemioloog eigenlijk boven alles prakticus moet zijn. Hij of zij is te vergelijken met een detective die oren en ogen open moet houden voor elk detail binnen de complexe moderne produktiesystemen.
Volgend jaar zal het eerste lustrumsymposium in deze reeks plaatsvinden. Het is te hopen dat tijdens deze feestelijke gebeurtenis een nieuwe Utrechtse hoogleraar in de tropische diergeneeskunde zijn visitekaartje zal kunnen afgeven aan een internationaal gehoor.
Natuurlijk treft u ook in dit nummer de agenda en de rubriek vacatures aan.

Aangezien dit al weer het laatste nummer is van deze jaargang, wenst de redactie van EQUATOR alle lezers nu al een zeer voorspoedig 1994 toe!!

Veterinair ontwikkelingswerk in geteisterd Cambodja

ONTWIKKELING "HUMAN RESOURCES" EERSTE PRIORITEIT

Cambodja, ingesloten tussen Vietnam en Thailand, is na een gruwelijke burgeroorlog en een langdurige bezetting door het Vietnamese leger bezig zich uit een diep dal van menselijk leed omhoog te werken.

Het Rode-Khmerregime is verantwoordelijk voor de grootste misdaad tegen de mensheid sinds de Tweede Wereldoorlog. De communistische Rode Khmers wierpen het pro-westerse Lon Nol-regime op 17 april 1975 omver en walsten in korte tijd het land plat. Steden werden van de ene dag op de andere volledig leeggehaald. Aanhangers van het verslagen bewind werden samen met hun gezinsleden ter dood gebracht. Het hele land werd herschapen in een immens arbeidskamp en de bevolking werd te werk gesteld in landbouwcoöperaties. Terreur en geweld waren middelen om van Cambodja een modelsamenleving te maken. De naam Pol Pot zal voor altijd verbonden zijn aan het terreurregime dat in de periode 1975-1979 de dood van minstens 1,2 miljoen mensen heeft veroorzaakt. Na een korte grensoorlog eind 1978 bezette Vietnam het land en installeerde een vazalregering in Phnom Penh. De bezetting van Cambodja door het Vietnamese leger zou meer dan tien jaar duren. De feitelijke macht berustte bij de communistische partij, die aanvankelijk volledig werd gedomineerd door de zusterpartij uit Hanoi. In deze jaren gaf de Cambodjaanse regering prioriteit aan het veiligstellen van de voedselproduktie, de landsverdediging en de poging om een a-politieke, traditioneel ingestelde en godsdienstige bevolking te laten geloven in een communisme dat minder totaal was dan dat van Pol Pot. Een van de eerste maatregelen die de nieuwe regering na 1979 doorvoerde was een landhervorming naar socialistisch model. Dit werd geen succes. De oogst bleek bij lange na niet voldoende om de weer groeiende bevolking te voeden. Een missie van de Food and Agriculture Organization (FAO) constateerde al in 1984 dat de ernstige rijsttekorten niet alleen te wijten waren aan natuurrampen, maar ook aan gebrek aan deskundige leiding, machines, trekvee en werktuigen.

Cambodja is nog steeds een voornamelijk agrarisch land waar 85% van de bevolking op het platteland leeft. Westerse niet-gouvernementele organisaties (NGO's) spelen een niet-onbelangrijke rol bij de wederopbouw van het land. Nederlandse organisaties als NOVIB, CEBEMO en ICCO zijn al sinds 1979 in samenwerking met buitenlandse NGO's betrokken bij de noodhulp voor Cambodja.[1]

De redactie van EQUATOR ontving een brief van dierenarts Chris Bartels, die via *Dienst over Grenzen* voor *Church World Service* voor een periode van drie jaar naar Cambodja is uitgezonden. Het onderstaande verhaal is een bewerking van zijn brief.

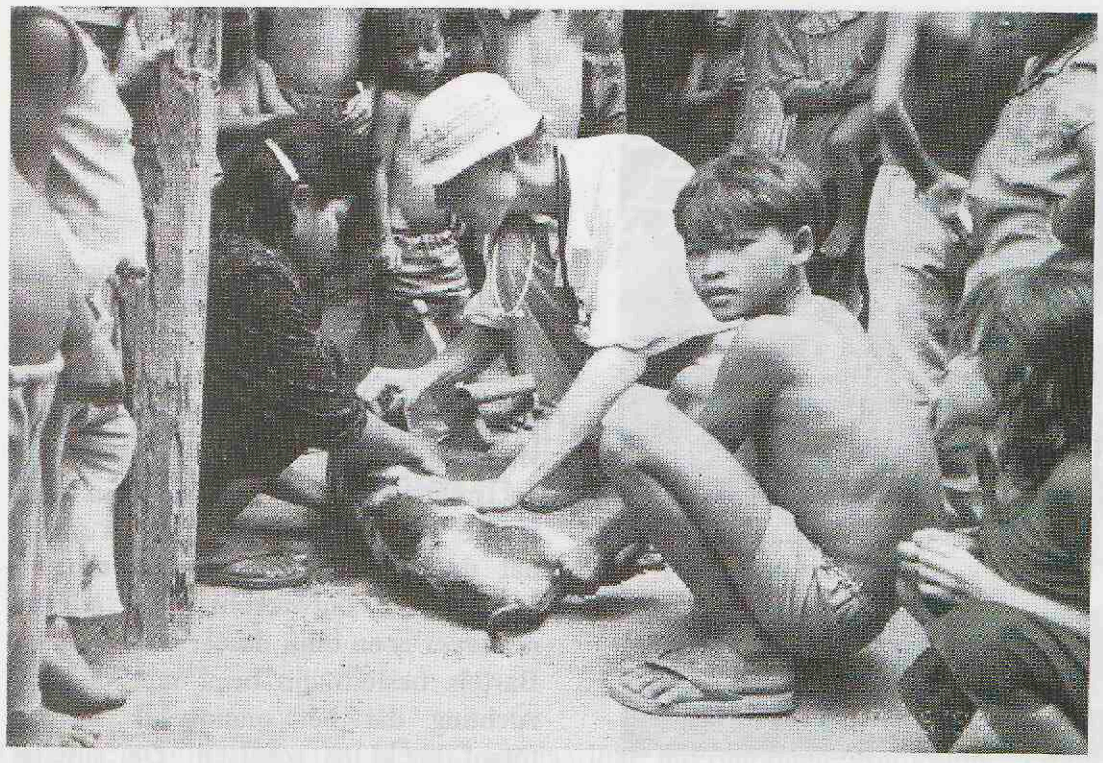
De positie van NGO's in Cambodja

Church World Service (CWS) is de afdeling van de *National Council of Churches* van de Verenigde Staten die zich bezig houdt met ontwikkelingssamenwerking. Meestal in de vorm van financiële steun aan lokale non-gouvernementele organisaties (NGO's), maar soms ook door directe hulp. In Cambodja fungeert CWS zelf als NGO en doet dit al sinds de verdrijving van Pol Pot in 1979. Tijdens de Vietnamese bezetting die volgde, was het voor NGO's feitelijk alleen mogelijk te werken in en rond Phnom Penh. Het was toen ondenkbaar om in Cambodja te reizen zoals nu, eind 1993, weer wel mogelijk is. CWS besloot samen te werken met het *American Friends Service Committee* (AFSC) op het gebied van de diergezondheidszorg. Cambodjaanse boeren zijn namelijk voor de rijstproduktie goeddeels afhankelijk van de trekkracht van runderen en waterbuffels. Onder het bewind van Pol Pot is het aantal trekdieren gereduceerd van 3 tot 1 miljoen. Gezamenlijk zetten CWS en AFSC een vaccinatiecampagne op tegen besmettelijke dierziekten, met als voornaamste doel het aantal trekdieren weer op het oude peil te krijgen. Vier ziekten stonden hoog op de prioriteitenlijst: mond- en klauwzeer (MKZ), hemorragische septicaemie (HS), boutvuur en miltvuur. CWS en AFSC zorgden voor de aanschaf van de benodigde vaccins en koelvoorzieningen ten behoeve van de distributie (de zogenaamde *cold chain*). Tegelijkertijd werd voorlichting gegeven aan veterinairen en vaccinators. Daarnaast heeft het AFSC in de loop van 1985-86 een klein laboratorium opgezet voor de produktie van het HS-vaccin en ondersteunde CWS het nationaal diagnostisch laboratorium door veterinaire expertise en materiaal ter beschikking te stellen.

Na het vertrek van de Vietnamese troepen in 1989 werd het makkelijker voor de hulporganisaties om lokale projecten uit te voeren. CWS heeft momenteel 3 projecten in de provincies. De nadruk ligt nog op voorlichting aan en training van veterinairen, vaccinators en boeren. Echter, het accent begint te verschuiven richting klinisch werk. De Cambodjaanse counterparts worden hierbij intensief begeleid zodat zij in staat zijn op de juiste manier zieke dieren te behandelen. Het creeren van de noodzakelijke infrastructuur, zoals de aanleg van waterputten, moet uiteindelijk leiden tot een verbetering van het inkomen van de boeren.

Het Nationaal Veterinair Diagnostisch Laboratorium

Chris Bartels werkt bij het Nationaal Veterinair Diagnostisch Laboratorium (NVDL). Dit laboratorium bevindt zich op hetzelfde terrein als de veterinaire dienst. Hierdoor heeft hij de mogelijkheid intensieve contacten te onderhou-

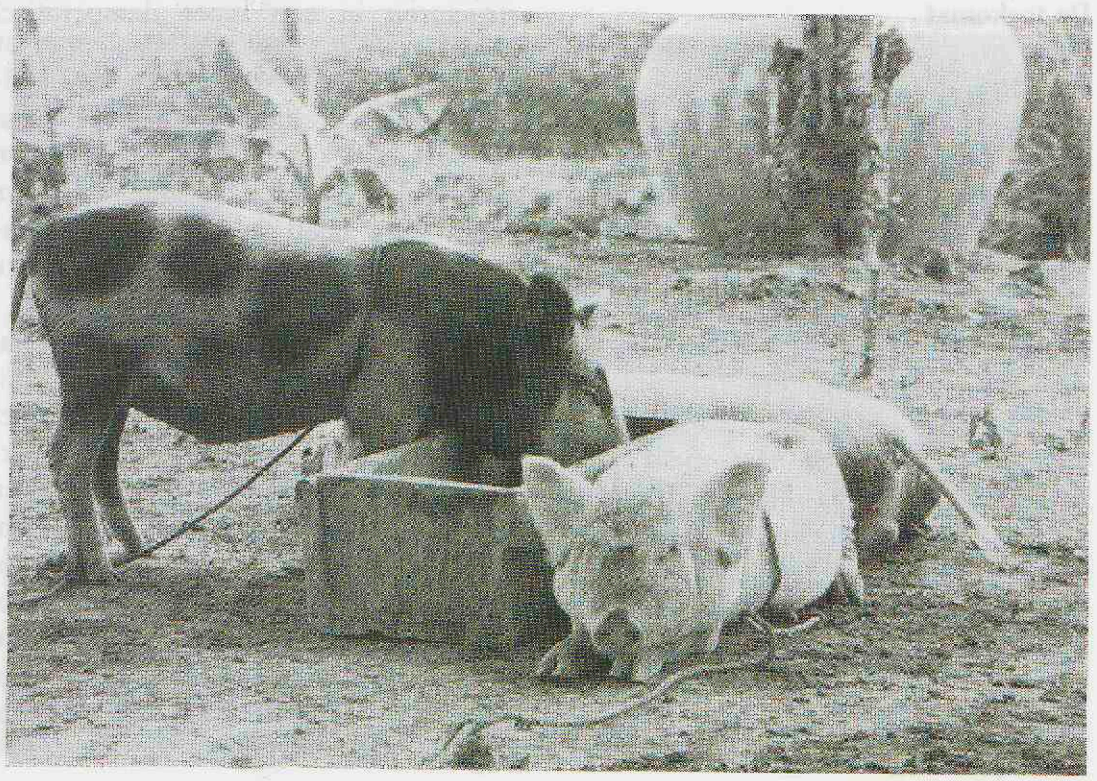


In Cambodja is klinisch onderzoek vaak de enige methode voor het stellen van een diagnose(foto: Stienstra).

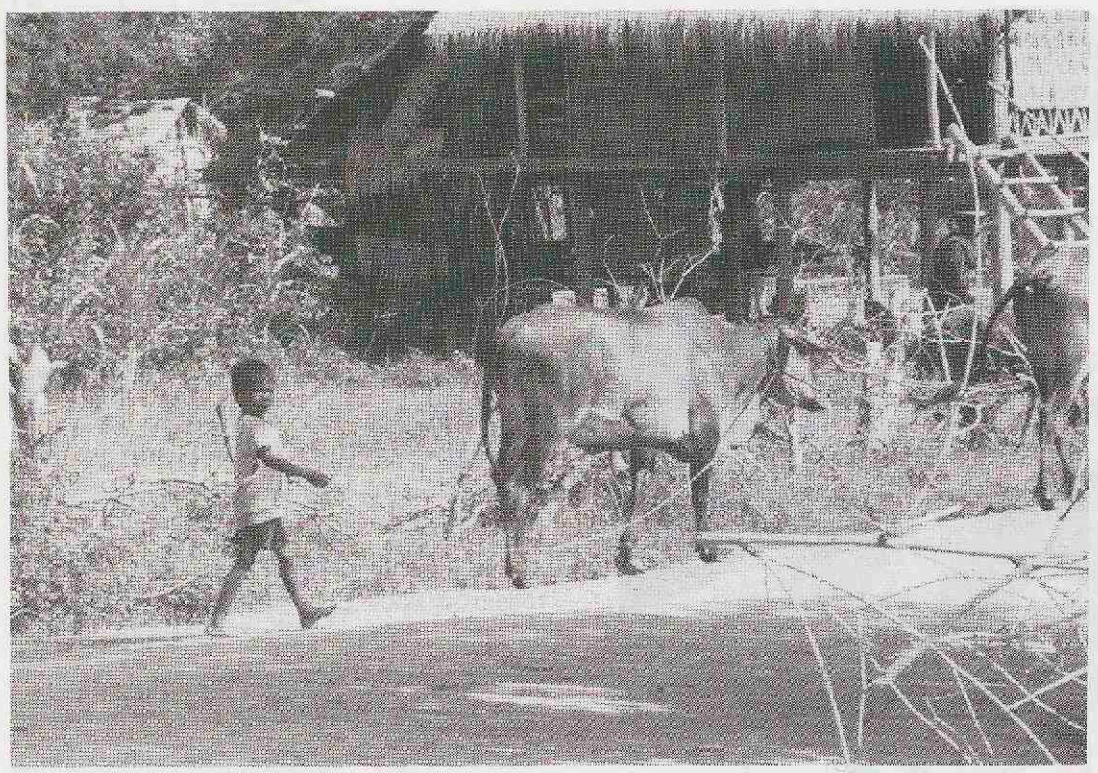
den met ambtenaren van dit departement. Het grote probleem van Cambodja is dat er te weinig geschoold kader is om het land te besturen. Zodoende wordt het beleid op veterinair gebied momenteel uitgestippeld en uitgevoerd door de NGO's. Door het gebrek aan coördinatie kan alles en is er nauwelijks overleg tussen de verschillende projecten. Om te beginnen maakte Chris daarom een rondgang langs de andere NGO's die op veterinair gebied werkzaam zijn. Hij wilde nagaan hoe de NGO's zouden kunnen samenwerken en welke functie zijn laboratorium daarbij zou kunnen vervullen.

Het NVDL had sinds het vertrek van de laatste "laboratorium dierenarts" geen budget meer om de voorraad reagentia en media op peil te houden. Ook de aanvoer van monsters werd niet meer geregeld. Toen Chris Bartels arriveerde, ontdekte hij dan ook dat basale materialen niet meer in voorraad waren en minder courante media ver over hun houdbaarheidsdatum heen waren.
Chris is nu bezig om samen met zijn counterpart, de dierenarts Sen Sovann protocollen te schrijven voor laboratoriumtesten met het idee dat uniformiteit in de uitvoering noodzakelijk is om betrouwbare testresultaten te krijgen. Tegelijkertijd krijgen studenten les in laboratoriumtechnieken. Zolang de universiteit geen eigen laboratoriumfaciliteiten heeft, zal het NVDL dienst doen als prakticumzaal. Voorlopig wordt het laboratorium uitgerust voor parasitologisch, haematologisch en bacteriologisch onderzoek en post-mortem diagnostiek. De verwachte installatie van ELISA-apparatuur in december 1993 zal de diagnostische mogelijkheden aanzienlijk vergroten. Het zou dan mogelijk moeten zijn een uitbraak van mond- en klauwzeer, varkenspest of Newcastle disease vast te stellen en uitgebreide studies te doen naar het voorkomen van leverbotinfecties (*Fasciola gigantica*). En, last but not least, Bartels geeft iedere dag een uur Engelse les aan de medewerkers. Zelf ziet hij dit als het meest nuttige dat de staf wordt aangeboden. Zonder kennis van de Engelse taal komen de stafleden niet in aanmerking voor voortgezette studie in de omringende landen.

Mond- en klauwzeerbestrijding
Een ander aspect van zijn werk is het onderhouden van contacten met de veterinaire dienst. CWS houdt zich al jaren bezig met vaccinatie tegen MKZ en Bartels probeert momenteel de verantwoordelijke ambtenaren te interesseren voor een structureel plan voor de controle van MKZ. Dit plan bevat onder andere de volgende elementen: identificatie van dieren, controle op de verplaatsing van dieren (momenteel is er absoluut geen controle, de veterinaire diensten hebben geen mogelijkheden om eventueel bestaande wetgeving op dit gebied kracht bij te zetten.), een adequate rapportage van eventuele uitbraken, een goede monitoring na een uitbraak, en een goede follow up. Een zelfde aanpak kan worden overwogen voor pasteurellose, bout- en miltvuur.
Een ander opmerkelijk probleem is dat er geen betrouwbare data beschikbaar zijn. Elke administratieve kracht in de veterinaire sector kan met veel enthousiasme vertellen hoeveel dieren er van elke diersoort in zijn district aanwezig zijn. Navraag leert echter dat deze getallen *Casio statistics* zijn. Alle statistieken zijn gebaseerd op oude gegevens, waar ieder jaar 4-4,5% bij wordt opgeteld. Bartels zou graag zien dat het



Traditionele manier van varkenshouden in Cambodja (foto: Stienstra).



Kinderen zorgen meestal voor het vee (foto: Stienstra)

laboratoriumwerk aansluit bij vragen die leven in het veld. Want vragen zijn er genoeg, maar er zijn nauwelijks resultaten bekend die zijn gebaseerd op harde gegevens. Zonder grondig onderzoek wordt al snel verondersteld dat bepaalde ziekten endemisch voorkomen. Deze conclusie wordt soms al getrokken op basis van één voorkomend klinisch geval. Aan de andere kant kunnen door betrouwbare diagnostische tests ook "nieuwe" ziekten aangetoond worden. Zo konden Bartels c.s. voor het eerst in de veterinaire geschiedenis van Cambodja een geval van varkenspest daadwerkelijk aantonen door de organen van een verdacht varken voor post-mortaal onderzoek op te sturen naar Bangkok, de hoofdstad van Thailand.

De toekomst

In de westerse landen functioneert een laboratorium op basis van vragen uit het veld: taken zijn bijvoorbeeld het confirmeren van ziekten en de ondersteuning van controle-programma's. In Cambodja is de situatie anders: het NVDL wordt voorzien van monsters door de NGO's die in de buurt van Phnom Penh opereren en in de gelegenheid zijn de monsters op tijd in het laboratorium te krijgen. Bartels heeft hier geen problemen mee, maar, zoals gezegd, hij wil het laboratorium een positie geven binnen de veterinaire dienstverlening. Hij wil dit bereiken door het opzetten van onderzoekjes naar het voorkomen van ziekten en infecties. Het is in dit verband ook erg belangrijk om de laboranten te betrekken bij het werk dat relevant is voor de provincie. Bartels wil beginnen met onderzoek naar parasitaire infecties. Daarvoor zijn geen geavanceerde technieken nodig en het kan op grote schaal uitgevoerd worden. Ook moeten de uitslagen van het laboratorium betrouwbaar zijn. Op deze wijze hoopt Chris Bartels zijn mensen te motiveren, hetgeen niet meevalt in een situatie waarin de mensen een maandsalaris verdienen van omgerekend 10 tot 15 Amerikaanse dollars. Vaak wordt het salaris 2-3 maanden te laat uitbetaald. Het is dus logisch dat velen na het tekenen van de presentielijst weer vertrekken om het brood op de plank te verdienen.

Op het ogenblik verandert er veel op nationaal bestuurlijk niveau. Wat de omzetting van de oude communistische structuren in een meer democratisch model voor gevolgen zal hebben voor bijvoorbeeld het Ministerie van Landbouw en de positie van de mensen die er werken, is nog niet zeker. Velen stellen zich dan ook terughoudend op. Niets doen heeft in deze situatie immers minder consequenties dan al te fanatiek te werk te gaan.
Inmiddels hebben diverse internationale organisaties al voorstellen ter verbetering van de situatie ingediend bij het ministerie. Ook het NVDL komt hierbij ter sprake. De voorstellen variëren van het renoveren van het laboratorium en het leveren van nieuw materiaal tot een miljoenenvoorstel om een geheel nieuw gebouw neer te zetten en dat nieuwe laboratorium de eerste 5 jaar te laten begeleiden door buitenlandse experts. Het werkterrein van de NGO's zal door deze ontwikkelingen langzaam worden teruggedrongen naar de provincies. Dat NGO's jarenlang nationaal konden opereren had zijn redenen, maar die tijd is nu voorbij. Bartels vindt dit geen probleem. Hij stelt wel dat miljoenenbudgetten goed zijn voor mooie gebouwen en apparaten maar dat de mensen niet vergeten moeten worden. De ontwikkeling van *human resources* is en blijft de eerste prioriteit. Bartels besluit zijn brief met de verzuchting dat het onmogelijk is een totaal beeld te schetsen. De situatie verandert razendsnel en het is niet te voorspellen in welke richting.

Jean de Gooijer

BIC NEWS

Internationaal tropensymposium in Utrecht: Recente ontwikkelingen in de Veterinaire Epidemiologie

Op 24 september jongstleden vond het jaarlijke internationale symposium "Tropical Animal Health and Production" bij de Faculteit Diergeneeskunde in Utrecht plaats. Het thema van het 4e symposium in deze reeks Recent developments in veterinary epidemiology", bleek goed gekozen: de organisatoren konden op deze dag ruim 100 deelnemers uit 22 landen verwelkomen.

Een activiteit van de Tropencomissie

De symposia op het gebied van "Tropical Animal Health and Production" zijn een initiatief van de Tropencommissie van de Faculteit Diergeneeskunde. Deze commissie is samengesteld uit medewerkers met werkervaring in de tropen die ijveren voor het in stand houden van voldoende kennis op het gebied van de diergeneeskunde in de tropen bij de Faculteit. Onderzoeksresultaten en activiteiten, die relevant zijn voor de diergezondheidszorg in de tropen, en bevindingen van onderzoeksprojecten die de Faculteit uitvoert in samenwerking met instituten in de tropen, worden tijdens deze symposia gepresenteerd aan een internationaal gehoor, bestaande uit onderzoekers, beleidmakers, medewerkers van ontwikkelingsorganisaties en andere belangstellenden.

Het wetenschappelijke programma van het symposium over "Recent developments in veterinary epidemiology" was in handen van een organisatie comité onder voorzitterschap van Prof. Dr. A. Brand, hoogleraar in de bedrijfsdiergeneeskunde. De logistiek werd verzorgd door het Bureau Internationale Contacten (BIC).

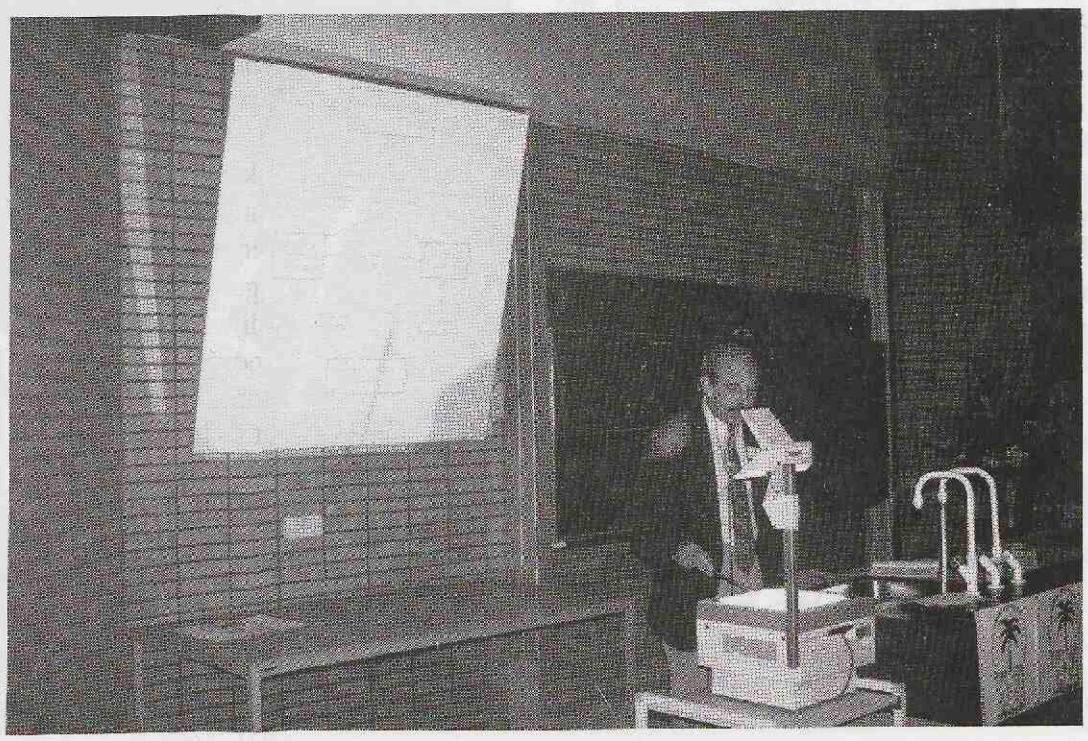
Introductie en toepassing van epidemiologische modellen

De introductie van "epidemiologische modellen" werd verzorgd door Dr. Y. H. Schukken van de Faculteit Diergeneeskunde. Aandacht werd besteed aan de toepassingsmogelijkheden van recent ontwikkelde methodieken in de veterinaire epidemiologie voor situaties in de tropen. De nadruk lag hierbij op de ontwikkeling van modellen en de mogelijkheden en beperkingen van deze methode voor de analyse van grote databestanden met aanzienlijke aantallen (wel tot 100) parameters.

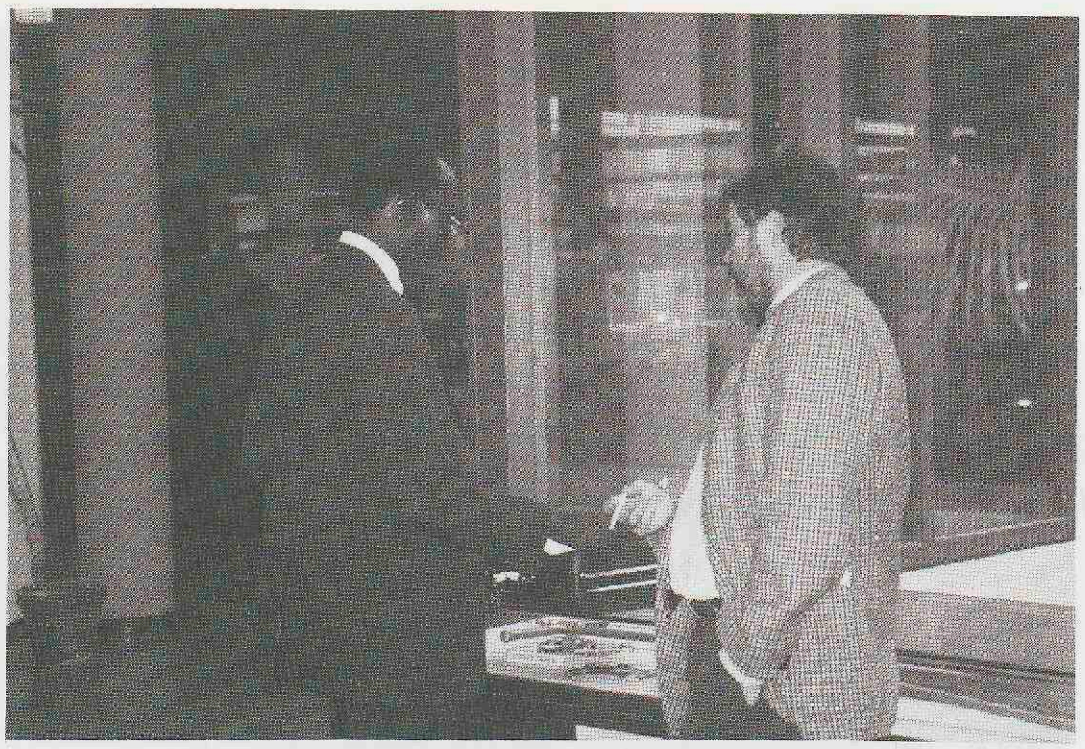
Een praktisch voorbeeld werd gepresenteerd door Prof. Dr. Ir. A.A. Dijkhuizen van de Landbouwuniversiteit Wageningen, die het model toelichtte waarmee de economische consequenties van de diverse methoden voor controle van mond- en klauw zeer in Nederland kunnen worden geanalyseerd.

Dat de epidemiologische modellen ook in de tropen daadwerkelijk worden toegepast, bleek uit de presentatie van Dr. E. Perez, docent aan de diergeneeskundige faculteit te Heredia, Costa Rica. Dr. Perez lichtte met zijn presentatie "Calfhood morbidity and mortality in Costa-Rican dairy, dual purpose and beef cattle" reeds een puntje van de sluier op van wat hij, over ongeveer jaar, tijdens zijn promotie in Utrecht als zijn proefschrift zal gaan verdedigen.

Verschillende parameters die van invloed zijn op het voorkomen van diarree en klinische ademhalingsproblemen en de sterfte die hiervan een gevolg is, werden geschat op hun relatieve waarde. Met name bleken van invloed het management systeem en het ras. Kalveren van het Jersey ras bleken onder de heersende lokale omstandigheden in Costa Rica minder bestand tegen de onderzochte ziekten dan Holstein kalveren. Op de vraag of deze waarnemingen al tot een advies voor het houden van meer Holsteins had geleid antwoordde Perez ontkennend. De economische consequenties zijn nog onvoldoende onderbouwd om de boeren te overtuigen. Kalversterfte is maar een onderdeel van de produktiviteit van een ras.



Prof. A.A. Dijkhuizen presenteert een epidemiologisch model voor mond- en klauwzeerbestrijding (foto: De Gooijer)



In de pauzes werden de discussies voortgezet (foto: De Gooijer).

Wat is de waarde van 'surveys'?

Prof. Dr. K.H. Zessin, die als hoogleraar in de epidemiologie verbonden is aan het Instituut voor Parasitologie en Tropische Diergeneeskunde van de Vrije Universiteit van Berlijn, presenteerde de conclusies van een uitgebreid literatuuronderzoek (86 publikaties) naar de kwaliteit van de in internationale tijdschriften gepubliceerde resultaten van 'surveys' naar het voorkomen van dierziekten in de tropen en de daaraan verbonden conclusies voor de bestrijding. Zijn oordeel was dat zeer veel 'surveys' technisch onvolkomen waren, met name voor wat betreft de planning en de statistische significantie van de resultaten. Conclusies, bijvoorbeeld ten aanzien van "noodzakelijke" controle-programma's waren nog al eens gebaseerd op niet-significante onderzoeksresultaten.

Wat nodig is zijn onderzoeken die het nauwe gebied van de 'survey' overschrijden. Het ziekterisico wordt immers bepaald door de verschillende typen produktiesystemen en hun ecologische situaties, en verder beïnvloed door het managementsysteem en de beschikbaarheid van diverse hulpbronnen. De relatie tussen ziekte en produktiviteit binnen de belangrijkste produktiesystemen, zal moeten worden vastgesteld om eventuele interventies te rechtvaardigen. Prof. Zessin eindigde met het schetsen van de ironische situatie waarin het veeteeltkundig onderzoek momenteel verkeert: "Nu de methodieken ontwikkeld zijn om analyses uit te voeren voor een economisch verantwoorde dierziektebestrijding en hervormingen in de dienstverlening ten behoeve van de veeteeltsector in vele ontwikkelingslanden worden ingevoerd, blijkt er bij de donoren steeds minder animo te zijn om de ontwikkeling van deze sector te steunen".

Veterinaire zorg in Afghanistan

In 1988 werd met steun van het Afghanistan Comité Nederland het *Veterinary Training and Support Centre* (VTCS) in Peshawar, Pakistan gestart, dat tot doel had een veterinair noodprogramma voor grote delen van het in oorlog verkerende Afghanistan op te zetten (zie ook EQUATOR jaargang 3, no. 1. van januari 1991). Onlangs werd, in het nog steeds in een burgeroorlog gewikkelde Afghanistan, een onderzoek uitgevoerd, waarbij door middel van vragenlijsten het effect werd bepaald van 3 jaar veterinaire basiszorg (vaccinaties tegen de belangrijkste infectieziekten en de behandeling van maagdarmparasieten en leverbot), verleend door paraveterinairen die zijn opgeleid door het VTCS. Drs. B.E.C. Schreuder van het DLO-Centaal Diergeneeskundig Instituut in Lelystad, presenteeerde tijdens het Symposium de eerste resultaten van dit onderzoek. Zo bleek de sterfte bij zowel jonge als volwassen runderen, schapen en geiten, aanzienlijk (25 tot 60%) lager te zijn in de gebieden waar het project actief was geweest, in vergelijking tot vergelijkbare gebieden waar geen veterinaire steun werd verleend. De conclusie lijkt gerechtvaardigd dat dit het gevolg was van de interventies uitgevoerd met steun van het project.

Drs. B.E.C. Schreuder presenteerde de eerste resultaten van een veldstudie in Afghanistan (foto: De Gooijer)

Een studie van de veestapel in Zimbabwe

Dr. A.A. Majok, hoofd van de klinische afdeling van de veterinaire faculteit van Zimbabwe presenteerde de resultaten van een onderzoek dat werd uitgevoerd in delen van de *communal areas* in Zimbabwe. Evenals in Afghanistan werd ook hier als onderzoeksmethode de vragenlijst gehanteerd die met behulp van veterinaire assistenten door 200 boeren werd ingevuld. Gegevens werden verzameld betreffende de mortaliteit, samenstelling van de veestapel en een aantal produktie-parameters. Opmerkelijk was de lage mortaliteit die werd vastgesteld, te meer daar Zimbabwe ten tijde van het onderzoek een zeer droge periode doormaakte. Tijdens de discussie bleek dat de resultaten voor meerdere uitleg vatbaar waren en dat aanvullend onderzoek noodzakelijk was om een beter totaal beeld te krijgen van de kleinschalige veeteeltsector in deze dichtbevolkte gebieden van Zimbabwe.

Produkten van dierlijke oorsprong

Produkten van dierlijke oorsprong zijn een belangrijke voedselbron voor mens en dier, maar ook een potentiële bron voor infectie. Bereid voedsel kan nog

infectieus virusmateriaal bevatten en de transmissie van virussen door afvalprodukten van dierlijke oorsprong wordt onderschat. Met deze stelling begon Dr. H.A.P. Urlings van de Faculteit Diergeneeskunde zijn presentatie over virustransmissie door produkten van dierlijke oorsprong. Het is gebleken dat meerdere dierpathogene virussen aanwezig kunnen zijn in produkten van dierlijke oorsprong. Als voorbeelden werden onder andere genoemd: het Newcastle-disease-virus bij pluimvee, het varkenspest- en Afrikaanse-varkenspestvirus bij varkens en het mond- en klauwzeer- en bovine-leukose-virus bij rundvee. Deze ziekten zijn van groot economisch belang in alle delen van de wereld. De specifieke bereidingswijzen, die in bepaalde tropische gebieden opgang maken, kunnen bijdragen aan een verdere verspreiding van ziekten. Tijdens zijn presentatie ging Dr. Urlings dan ook in op de noodzakelijke maatregelen om mogelijk aanwezige virussen te inactiveren en op de noodzaak om zoveel mogelijk het voeren van afvalprodukten van dierlijke oorsprong tegen tegaan.

Pluimveeziekten in de tropen

Om de deelnemers aan het Symposium een zo breed mogelijk scala aan "epidemiologische" onderwerpen te presenteren, was Prof. Dr. L. van der Heide, van de University of Connecticut (Verenigde Staten) uitgenodigd om zijn visie te presenteren over de verspreiding van pluimveeziekten in de tropen en om met name de situatie in Thailand te schetsen. Uit zijn presentatie bleek al gauw dat de tijden van de kleinschalige pluimveehouderij ook in de tropen zo goed als voorbij zijn. De problemen waarmee deze sector geconfronteerd wordt zijn geheel van dezelfde aard als in Europa of de Verenigde Staten. Het niveau van het management en de hygiënische maatregelen, samen met de introductie van curatieve en preventieve behandeling heeft geleid tot een sterke afname van algemeen voorkomende ziekten zoals coccidiosis, interne en externe parasieten, coryza, pasteurellose en histomoniase. Het voorkomen van *Salmonella pullorum* is sterk terug gedrongen door het gebruik van geimporteerde *pullorum*-vrije fokdieren. Ondanks al deze maatregelen vinden er overal ter wereld regelmatig ernstige uitbraken plaats van infektieziekten, dus ook in de tropen. Het belangrijkst hierbij zijn de organismen die bijdragen tot het respiratie-syndroom zoals de virussen die Newcastle disease en infecteuse bronchitis veroorzaken en *Mycoplasma gallisepticum* en *M. synoviae*. De specifieke klimaatsomstandigheden in de tropen kunnen wel bijzondere eisen stellen aan de huisvesting van grote aantallen dieren.

Epiloog van de voorzitter

Prof. Dr. A. Brand, de voorzitter van het organiserend comité, concludeerde in zijn epiloog dat een epidemioloog eigenlijk boven alles prakticus moet zijn. Hij of zij is te vergelijken met een detective die oren en ogen open moet houden voor elk detail binnen de complexe moderne produktiesystemen.

R.W. Paling

Noot van de redactie:

Er zijn nog enkele exemplaren beschikbaar van het symposiumboek dat onder andere uitgebreide samenvattingen van de lezingen bevat.
De bockjes zijn te verkrijgen bij het Bureau Internationale Contacten van de Faculteit Diergeneeskunde, Yalelaan 1, kamer 607, Postbus 80.163, 3508 TD Utrecht. Tel. +3130.532116. Telefax: +3130.531815.

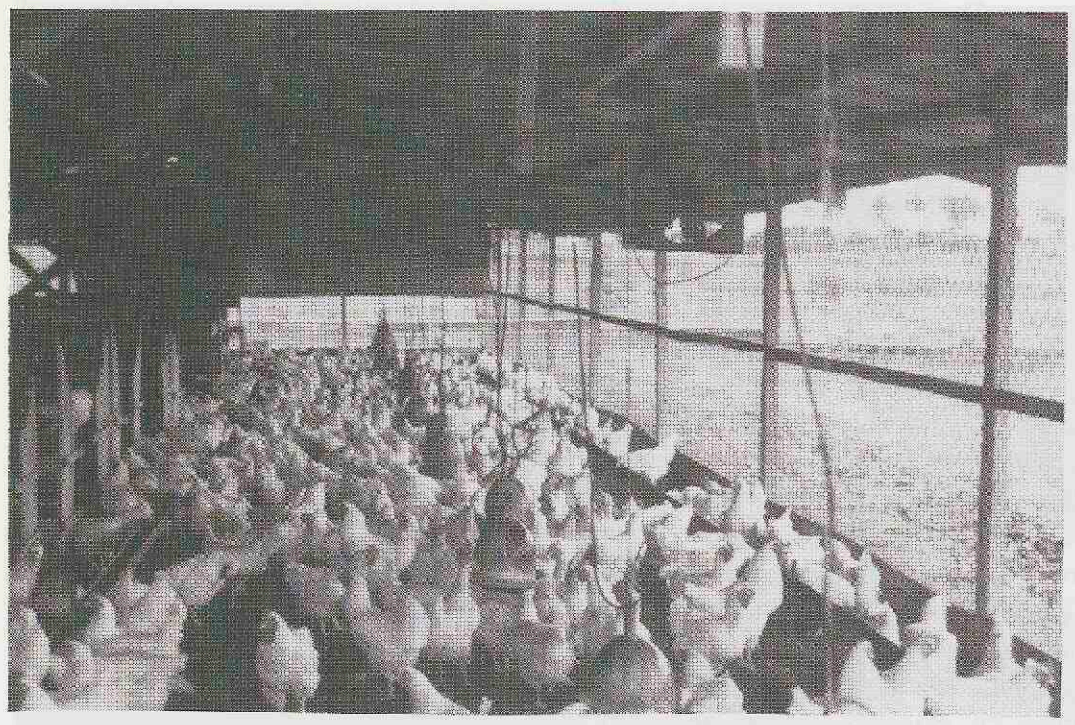
Ontwikkelingsprojecten in Nigeria lonen niet

ER MOET GELD VERDIEND WORDEN!

Joep Bolwerk is even in Nederland, net terug uit Nigeria, als de redactie van EQUATOR hem spreekt over zijn ervaringen in Afrika. Hij neemt deel aan het symposium *Tropical Animal Health and Production* aan de Faculteit Diergeneeskunde in Utrecht voor hij verder reist naar Berlijn, waar hij de PAO-cursus Tropische Epidemiologie en Preventieve Ziektekunde gaat volgen. In Nigeria werkte hij op een groot commercieel pluimveebedrijf. Een Nederlandse dierenarts dus die nu eens niet in een ontwikkelingssamenwerkingsproject of voor de overheid werkt. Merel Langelaar tekende zijn ervaringen op.

Hoe ben je in Nigeria bij een pluimveebedrijf terechtgekomen. Was het tijdens je studie al een wens om naar Afrika te gaan?

Tijdens mijn studie had ik al het idee om niet in Nederland te blijven, dat leek me nogal benauwend. Aan Afrika had ik echter ook niet direct gedacht, dat leek me eerlijk gezegd een continent zonder toekomst. Maar nadat ik een tijdje waargenomen had na mijn afstuderen in 1987, werd ik opgebeld door een Nigeriaanse dierenarts die me vroeg of ik een paar maanden met hem mee wilde. Daar in Nigeria heb ik toen twee maanden meegedaan in een praktijk met kleine huisdieren en paarden in Ibadan. Voor mij was dat een mogelijkheid om met het Nigeriaanse leven in aanraking te komen en voor hem om op nieuwe ideeën te komen door samen te werken met een Europese dierenarts. Daarna ben ik blijven hangen en bij een pluimveebedrijf gaan werken als produktiemanager. Toen ik daar na



Grote pluimveebedrijven importeren hybriden uit Europa om te voldoen aan de vraag van restaurants en supermarktketens (foto: Bolwerk).

een jaar genoeg van had en eigenlijk weer terug wilde gaan naar Nederland, kreeg ik een baan aangeboden bij een nieuw pluimveebedrijf.
Bij dat bedrijf heb ik van 1989 tot nu gewerkt. Het is een Israëlisch-Nigeriaanse joint-venture, een commercieel bedrijf dat niets met ontwikkelingshulp te maken heeft. Zij hadden mijn werk als produktiemanager gezien en vroegen mij om die reden. Bij dit bedrijf werd ik via produktiemanager later general manager. Ongelukkigerwijs is de situatie nog steeds zo dat ze voor die functie blijkbaar geen Nigeriaan willen hebben.

Wat voor soort bedrijf is het?

Het is een bedrijf met meerdere eenheden waar eendagskuikens worden geproduceerd via het all-in-all-out systeem. Eerst alleen slachtkuikens, later ook leghennen, ouderdieren en grootouderdieren, alhoewel dat eigenlijk niet allemaal op één bedrijf zou moeten. De kuikens worden door heel Nigeria afgeleverd.
Het bedrijf heeft ingespeeld op de grote groei in de pluimveeindustrie die in Nigeria in het begin van de jaren '80 werd doorgemaakt. Nigeria verdiende toen veel geld aan de olie-export, en de bomen leken tot in de hemel te groeien. Inmiddels is de situatie enorm verslechterd, en de pluimvee-industrie is behoorlijk in elkaar gestort. Veel bedrijven zijn gesloten, maar dit bedrijf is gegroeid.
Er is wel degelijk een markt voor de kuikens die geproduceerd worden. Via distributiebedrijven gaan de kuikens naar andere grote bedrijven die het eindprodukt leveren, diepvrieskuikens. Die worden verkocht aan supermarktketens, hotels en fast-foodrestaurants in de grote steden.
Het bedrijf heeft zich inmiddels meer toegelegd op slachtkuikens en legdieren. Gebleken is namelijk dat pluimveebedrijven toch teveel moeten investeren in ouderdieren; bovendien ontbreekt veelal de kennis.
Op het bedrijf zelf wordt het voer gemaakt, op dit moment zo'n zestig ton per week. Op de plaatselijke markt worden daarvoor de grondstoffen ingekocht, zoals maïs, soja, pindaschroot en afval van de meelindustrie. Sommige vitamines worden geïmporteerd. Medicijnen en vaccins zijn over het algemeen ook goed verkrijgbaar; multinationals zien namelijk wel een markt in een groot land als Nigeria, en zij leveren betrouwbare produkten.

Wat was jouw taak binnen het bedrijf?

Eigenlijk had ik vooral een managementfunctie, die in de loop der tijd steeds meer een administratieve baan geworden is. Ik had steeds minder tijd voor het pluimvee. Ik bleef wel betrokken bij de werkvloer, maar werd steeds afhankelijker van een aantal Nigerianen voor wat betreft de dagelijkse leiding. De mensen waar je mee werkt ken je natuurlijk goed, zij weten wanneer ze je erbij moeten betrekken als er problemen ontstaan.
Ik heb veel ervaring opgedaan, niet alleen op het gebied van broederijen, broederij-uitkomsten en dergelijke, maar ook op het gebied van de produktie van voer en het leiden van een bedrijf met een eigen wagenpark, eigen stroom-aggregaten, etcetera.

Als je het vergelijkt met de Europese situatie, wat zijn dan specifieke problemen die zich voordoen?

Eigenlijk is het niet vergelijkbaar met een Europese situatie. Om te beginnen is er het klimaat - bijna tropisch regenwoud - dat niet bevorderlijk is voor de diergezondheid en een goede dierlijke produktie. De kwaliteit van de grondstoffen voor het voer is lager dan in Europa. Ondanks een goede training hebben de werknemers toch een andere toewijding dan hier. Dat is ook niet zo verwonderlijk, want ze werken voor niet veel meer dan een hongerloontje. Er doen zich allerlei onverwachte dingen voor. Zo is er wel eens een tijd geen benzine of diesel verkrijgbaar geweest, een tijdje geen grondstoffen voor het voer, in bepaalde perioden in het jaar is het onmogelijk om ééndagskuikens te verkopen. Allemaal dingen die een normaal produktieproces onmogelijk maken. Veel dingen moet je zelf doen, zelf uitzoeken. Niemand kan je helpen met specifiek veterinaire problemen, er zijn geen goede laboratoriumfaciliteiten. Ik gebruikte serologische test-kits om te controleren of het vaccinatieprogramma voor Gumboro, NCD, bronchitis, goed gelukt was. Grote problemen zijn me gelukkig bespaard gebleven.

Je leert ook om op een andere wijze zaken te doen. Er is veel corruptie en daar wen je aan, je wordt zelf ook een beetje corrupt. Dat moet wel, want sommige dingen kunnen niet zonder smeergeld geregeld worden, het is een wijdverbreid fenomeen dat overal, in alle lagen, is doorgedrongen.

Vormt een dergelijk bedrijf geen oneigenlijke concurrentie voor de kleine boeren op het platteland, die hun kippen toch ook ergens willen verkopen?

Nee, het zijn twee markten naast elkaar. Tachtig procent van het pluimvee bevindt zich op het platteland. Dat zijn lokale rassen, de opfokmethoden zijn volkomen verschillend, ze hebben te kampen met hoge sterfte en trage groei. De produkten worden verkocht

op lokale markten. De overige twintig procent zijn hybriden, Europese dieren, op grote bedrijven. Die bedrijven leveren een uniform produkt, waar de restaurants en supermarkten in de grote steden om vragen. Het bedrijf waar ik werkte leverde de kuikens aan die bedrijven.

Hoe zit het met de dierenartsen in Nigeria, zijn er privé-praktijken, is er een goede opleiding?

Een jaar of tien à vijftien geleden was de opleiding redelijk goed, er was toen voldoende geld. Nu er geen geld meer is, en ook binnen de universiteit een moordende corruptie, is de kwaliteit van het onderwijs enorm achteruit gegaan. Je kunt er op dit moment afstuderen zonder ooit een levend beest van dichtbij gezien te hebben, laat staan er een diergeneeskundige handeling bij verricht te hebben.
De dierenarts waar ik in het begin gewerkt heb, had een goed lopende kleine-huisdierenpraktijk, zijn klanten hadden vertrouwen in hem. In de kleine-huisdierensector zijn het natuurlijk over het algemeen de rijkere Nigerianen en de buitenlanders met een huisdier die je cliëntèle vormen.
In de agrarische sector is het veel moeilijker. Er zijn wel dierenartsen, met name in het Zuiden van het land. Die werken vooral in de pluimveesector, want er zijn daar geen koeien en ook nauwelijks nog varkens nu er vooral moslims wonen. Ze leiden een vrij moeizaam bestaan: Ze hebben een gebrekkige kennis; ze moeten vaak beslissingen nemen zonder een juiste diagnose gesteld te hebben; ze zijn afhankelijk van de verkoop van medicijnen, de boeren zijn wantrouwend en er zijn geen goede laboratoria. Bovendien is de dierlijke produktie behalve van diergezondheid ook afhankelijk van allerlei andere factoren als *good husbandry*, voeding, huisvesting, klimaat en dergelijke, waar de dierenarts niet of nauwelijks vat op heeft.
Veel pas afgestudeerde dierenartsen willen ook helemaal niet werken als prakticus, ze willen veel liever een witte-boordenjob.

Je werkte voor een commercieel bedrijf. Had je niet het idee dat je op de één of andere manier iets meer aan 'ontwikkelingshulp' zou moeten doen?

Moeilijke vraag. Zoals ik het in Nigeria gezien heb, lonen ontwikkelingsprojecten niet, met name vanwege de moordende corruptie. Elk EG-project loopt via de overheid en bereikt slechts een beperkte groep Nigerianen, die daar op een ongelofelijke manier van profiteren, terwijl het project zelf slecht van de grond komt en de doelgroep niet bereikt.
Het is niet zozeer een kwestie van gebrek aan kennis maar meer gebrek aan welwillendheid. Als er geld van buitenaf komt dan wordt dat verteerd in het enorme ambtenarenapparaat, er blijft niets van over om iets op te zetten.
Dat is het voordeel van een commerciële opzet: er moet geld verdiend worden. Wat je er ook van vindt, er wordt werk verschaft aan Nigerianen en er wordt voor de Nigeriaanse markt geproduceerd. Het heeft toch wel impact op de plaatselijke agrarische ontwikkeling. Zelf heb ik geen moeite met een commerciële basis. De betrokkenheid van de mensen is groter. In de afgelopen jaren is er een aantal overheidspluimveebedrijven, ondanks grote investeringen, in elkaar geklapt, terwijl het bedrijf waar ik werkte juist gegroeid is. Ik denk dat dat te maken heeft met het feit dat er op zo'n overheidsbedrijf geen persoonlijke belangen in het spel zijn.

Je zei dat je Afrika voorheen zag als een continent zonder toekomst. Is dat idee veranderd nu je er een tijd geweest bent?

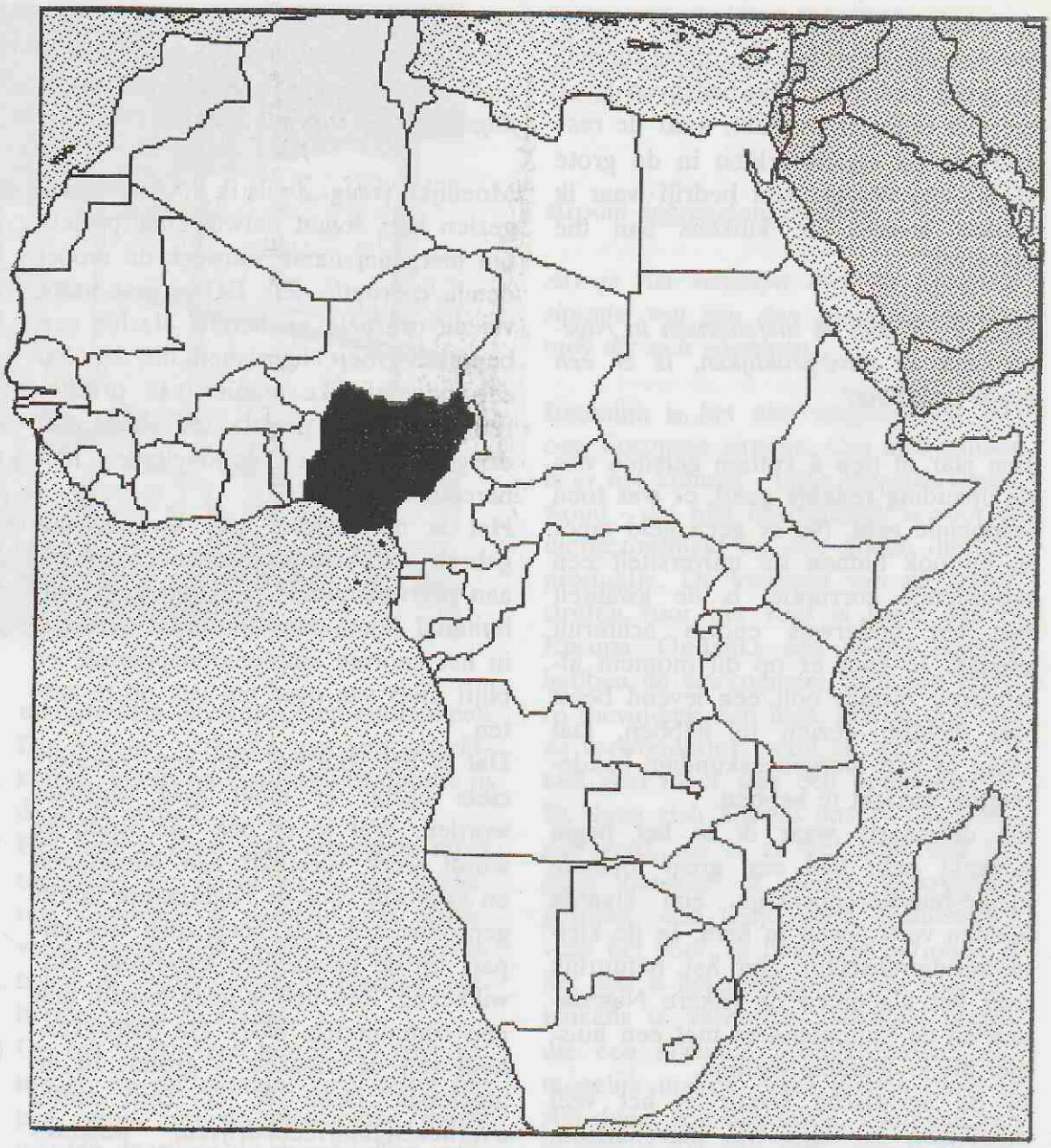
Het is er zeker niet beter op geworden. Ik zie niet hoe een land als Nigeria uit de problemen moet komen. Er heerst een financiële crisis, de produktiekosten zijn hoog, er is een gebrek aan initiatief omdat produktief zijn niet loont en de moordende corruptie is alleen maar steeds erger geworden, hele generaties zijn daar inmiddels door verpest. Hoe draai je dat terug? De meeste problemen die in Nigeria spelen zijn waarschijnlijk algemeen geldend voor de rest van Afrika. Er zijn zoveel sociale problemen, ruzies tussen stammen, taalverschillen, geloofsgeschillen, teveel om op te noemen. Ik denk dat iedereen pessimistisch zou moeten zijn over Afrika.
De 'donor fatigue' begint steeds meer te heersen. Bovendien zijn er twee groepen mensen: één groep die gelooft in ontwikkelingssamenwerking en het onafhankelijk maken van dit soort landen door de plaatselijke produktie te stimuleren, maar een andere groep lijkt daar helemaal geen belang bij te hebben. Zij zien Afrika als een afzetgebied voor de overproduktie van Europa, daarmee de lokale economie verstorend.
Hoe je er iets aan zou moeten doen weet ik ook niet. Ik hoor bij die grote groep mensen die niet één, twee, drie een oplossing aan kunnen dragen. Ik denk wel dat er aandacht geschonken moet worden aan de corruptie, die het niveau van ontwikkeling van de bevolking erg negatief beïnvloedt. Het analfabetisme moet om te beginnen uitge-

De klimaatsomstandigheden in de tropen stellen stellen bijzondere eisen aan de huisvesting van grote aantallen dieren (foto: Bolwerk).

roeid worden. Verder moet de rol van de overheid teruggedrongen worden, niet zozeer omdat je tegen de overheid moet zijn, maar omdat die veelal een verlammende invloed heeft.
In projecten voor deze landen zoals die nu uitgevoerd worden, heb ik niet zoveel vertrouwen, ik heb daar nog geen blijvend resultaat van gezien. Als je weet dat de bevolking in Afrika sinds 1970 is gegroeid met tachtig procent, maar dat in diezelfde periode de agrarische produktie is gedaald met twintig procent, dan vraag je je toch af waar al dat geld gebleven is.
Het voordeel van projecten met een commerciële basis is dat iemand die investeert meer belangen heeft, hij wil geld terug zien.

Waarom ben je weggegaan uit Nigeria?

Omdat ik vind dat je na een aantal jaren een tunnelvisie krijgt, je ziet je eigen fouten dan niet meer. Dan wordt het tijd om een nieuwe uitdaging te zoeken. Juist in de tropen heb je veel meer uitdagingen dan hier in de praktijk, je weet 's ochtends niet wat je de rest van de dag te wachten staat. Maar als je te lang op een plek blijft dan wordt het een baan net als alle andere.
Wat ik na die PAO-cursus in Berlijn ga doen weet ik nog niet, in elk geval wil ik niet in Nederland blijven. Na het werk dat ik gedaan heb, in een vrij gecompliceerde omgeving, met de verantwoordelijkheid over 150 mensen en veel afwisseling, zie ik me niet hier werken en eindeloos varkens enten.



Ik heb er zeker geen spijt van. Ik heb veel geleerd in Nigeria, de uitdagingen waren veel groter dan die ik hier in Nederland als dierenarts mee zou maken. Ik ben niet per se verknocht geraakt aan Afrika, alhoewel het me zeker wel wat gedaan heeft.

Merel Langelaar

VACATURES INTERNATIONALE SAMENWERKING

In deze rubriek worden vacatures opgenomen die door de redactie als mogelijk interessant voor Nederlandse dierenartsen worden aangemerkt. Naast vacatures die zullen worden overgenomen uit: Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, The Veterinary Record, INTRO Vacatures etc. zal er plaats zijn voor personeelsadvertenties. Voor nadere inlichtingen omtrent de geboden functies dient men zich direct tot de instelling of onderneming te wenden.

PAN AMERICAN HEALTH ORGANIZATION (PAHO)

ADVISOR VETERINARY PUBLIC HEALTH / BRASILIA, BRAZIL.

(Vacancy notice: 93/PAHO/30; post number: 4.3439).

Duties:
- Providing technical collaboration in subregional integration initiatives in the area of food protection and bilateral programmes for technical cooperation in zoonosis control. Collaborating in the establishment of technical cooperation strategies for the Organization, plans of work, methods of operation, and evaluation of activities in food protection, control and eradication of zoonoses, development of biomedical models, and strengthening of veterinary

public health services.
- Promoting and providing direct technical cooperations and leadership in the development of integrated national programmes of food protection, including planning, organization, implementation, monitoring, and evaluation.
- Developing and maintaining training programmes in national institutions to ensure the transfer of food protection technology to national personnel in order to support national programmes; organizing and providing individual and collective training for professionals.
- Preparing and/or collaborating in the preparation of grant proposals for external funding, in accordance with programme priorities.
- Collaborating in the preparation of technical reports. Collaborating with national institutions and universities in the design, conduct, and evaluation of research in food protection, in accordance with programme priorities.
- Coordinating the work of PAHO veterinary public health personnel in Brazil in order to ensure the implementation of interprogramme actions with, inter alia, programmes on environmental sanitation, food and nutrition, epidemiology, diarrhoeal diseases and other communicable diseases, and workers' health.
- Collaborating in the developing and implementation of the system for epidemiological surveillance of prevalent food-borne diseases and zoonoses. Collaborating in the development of teaching materials for community use and strengthening of undergraduate and graduate veterinary education and related activities.

Qualifications:
Doctor of Veterinary Medicine or equivalent degree in one of the health sciences with post graduate training to the Master's level in Public Health or areas related to food protection and zoonoses. In addition, academic training should include studies in animal health and production.
At national level: 7 years of experience in policy formulation with a national service involved in food science, zoonoses, and administration. Experience should include responsibility for all phases of development, implementation, and evaluation of programmes of food protection and zoonosis control, as well as teaching and investigative experience in modern methods of quality control of food and in administration of food laboratories.
At international level: 3 years of international experience, specifically in training and technical cooperation in food protection.
Very good knowledge of Spanish and/or Portuguese and a working knowledge of English.

Remuneration:
Salary (tax free) per annum. With dependants US$45,271 + Post adjustment US$11,499 and Hardship/mobility US$ 2,509.
Without dependants US$ 42,103 + Post adjustment US$ 10,694 and Hardship/-mobility US$ 2,329.

Additional information:
Division: Communicable Disease Prevention and Control (HPC). Duration: 2 Years, first year probationary period. Grade: P 4. Smoking is banned on PAHO/WHO premises.

Applications:
Applicants should quote the vacancy notice number and the post number. Applications from women are encouraged. Address: PAHO , 525 23rd Street N.W., 20037 Washington DC
(Tel.: +1.202.8613192).

Closing Date: 17 December, 1993.

(Overgenomen uit INTRO Vacatures)

THE UNIVERSITY OF THE WEST INDIES, ST. AUGUSTINE, TRINIDAD

Applications are invited for the following vacancies in the School of Veterinary Medicine:

PROFESSOR/SENIOR LECTURER IN VETERINARY PARASITOLOGY

LECTURER/ASSISTANT LECTURER IN VETERINARY PARASITOLOGY AND VETERINARY SURGERY

Applicants should have DVM and higher degree with relevant teaching and research experience for all posts. Experience in tropical veterinary parasitology required for posts in that area.

Remuneration:
Annual salary ranges:
professor: TT$ 109,080 - $125,784; senior lecturer: TT$ 90,660 - $109,080; lecturer TT$ 71,232 - $79,152 (B) TT$ 89,052, assistant lecturer TT$ 62,904 - 66,864, plus institutional allowance ranging from 10% to 30% of basic salary depending on post. Annual regional allowances: professor TT$ 20,340, senior lecturer TT$ 12,204; lecturers: TT$ 4,380 (below bar) or TT$ 7,884 (above bar).

Other conditions:
Passages, pension, housing allowances, study and travel and book grants.

Applications:
Applications naming three referees and detailing qualifications and experience to the Registrar, University of the West Indies, St. Augustine, Trinidad, as soon as possible. Further particulars sent to all applicants; these particulars are also available from the Appointments Department, Association of Commonwealth Universities, 36 Gordon Square, London WC1H OPF, UK (Tel. +44.-71.387.8572 ext. 206, telefax: +44.71.-383.0368).

(Overgenomen uit: The Veterinary Record, vol. 133, nr. 18, October 30, 1993).

AGENDA 1993-1995

Arusha, Tanzania
30 november - 2 december 1993
5th Panafrican Veterinary Association Congress in conjunction with the Regional Commonwealth and 11th Tanzanian Veterinary Association Scientific Conference. Theme: "Livestock production and the African environment". Topics: The impact of livestock husbandry systems on the environment; Science and technology for sustainable livestock development in Africa for the 21th century; Nutrition as a constraint to livestock production in Africa; The impact of diseases on livestock development in Africa; The role of private veterinary practice in enhancing livestock productivity; Improving animal production at village level. Information: Dr. P. Msolla, Chairman, Tanzanian Veterinary Association, P.O. Box 3021, Morogoro (Tel.: +255.56.-3511, telefax scientific committee: +255.56.3177/3718/3259).

Oenkerk, Nederland
17 januari - 15 juli 1994.
7th International course on "Dairy husbandry and milk processing". Organized by: Dairy Training Centre Friesland. Programme general part (11 weeks): Dairy development; animal husbandry; milk processing. Followed by specialized part (15 weeks) which has 3 options. Option 1 and 2: Dairy production (9 weeks) followed by either 6 weeks: Training and extension or by 6 weeks: Dairy farm management. Option 3: Small-scale milk processing. Course fee: Dfl. 4,500. Closing date for registration: 1 October, 1993. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands (Tel.: +31.5103.1562, telefax: +31.5103.1628).

Utrecht, Nederland
27 januari 1994
DIO-avondsymposium: Foot and mouth, just a third world problem?
Plaats: Collegezaal Vakgroep Geneeskunde van Gezelschapsdieren, Yalelaan 8, De Uithof-Utrecht.
Aanvang: 20.00 uur.

Utrecht, Nederland
5 april - 10 juni 1994.
Tropencursus. Keuze-co-assistentschap voor studenten van de Faculteit Diergeneeskunde van de Universiteit Utrecht. Georganiseerd door: Bureau Internationale Contacten van de Faculteit Diergeneeskunde. Sluitingsdatum: 28 februari 1994. Inlichtingen: Dr. R.W. Paling (Tel.: 030.532116).

Bangkok, Thailand
26-30 juni 1994.
13th International Pig Veterinary Society (IPVS) Congress. Organized by: Faculty of Veterinary Science, Chulalongkorn University. Information and registration: Dr. Annop Kunavongkrit, Secretary of the 13th IPVS Congress, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330 (Tel.: +66.2-2520738, telefax +66.2.2553910).

Nairobi, Kenya
15-19 augustus 1994
7th International Symposium on Veterinary Epidemiology and Economics. Information: The International Society for Veterinary Epidemiology and Economics (ISVEE), Centre for Disease Control, Mailstop G.33, Building 15 SSB 611, Atlanta, GA 30333, U.S.A. (Tel.: +1.404.6391050, telefax: +1.404.-6393296).

Oenkerk, Nederland
29 augustus - 7 Oktober 1994.
International course on: "Modern dairy farm management". Organized by: Dairy Training Centre Friesland. Programme: milk and milking; dairy cattle feeding; forage production; calf-rearing; fertility; breeding; animal health; housing; farm machinery; manpower management; farm economics and Dutch dairy industry. Course fee including board and lodging, excursion and insurance: Dfl. 4,250. Information and registration: Director DTC-Friesland, P.O. Box 85, 9062 ZJ Oenkerk, The Netherlands (Tel.: +31.5103.1562, telefax: +31.5103.1628).

Amsterdam, Nederland
September 1994 - juni 1995
International course in biomedical research development 1994-1995. Organized by the University of Amsterdam, Faculty of Medicine and the Royal Tropical Institute. Topics:
Module 1: Introduction and review; Module 2: Design and execution of research projects; Module 3: Design and execution of research projects; Module 4: Advanced methods I: Laboratory; Module 5: Advanced methods II: Research methodology and tools; Module 6: Individual project. Course fee: Dfl. 24.500.
Final date for submission of the preliminary application is February 15, 1994. Information: Dr. E.P. Wright, course coordinator, Faculty of Medicine, University of Amsterdam, Meibergdreef 15, 1105 AZ Amsterdam.