CONTENTS

Project summary: Development and field evaluation of animal feed supplementation packages (AFRA PROJECT II-17 - RAF/5/041) .................................................. 1
H.P.S. Makkar

REVIEWS

Principles of ration formulation for ruminants ................................................................. 9
M.C.N. Jayasuriya

On-farm treatment of straws and stovers with urea ......................................................... 15
T. Smith

Applications of the in vitro gas method in the evaluation of feed resources, and enhancement of nutritional value of tannin-rich tree/browse leaves and agro-industrial by-products ................................................................. 23
H.P.S. Makkar

COUNTRY REPORTS

The use of poultry waste as a dietary supplement for ruminants ..................................... 43
H.M. Saleh, K.M. Elwan, H.A. El-Fouly,
I.I. Ibrahim, A.M. Salama, M.A. Elashry

The economics of feeding concentrate to partially-milked Sanga cows in the dry season ...... 53
P.K. Karikari, K. Asare, S.A. Okantah

Responses to dry season supplementation by dairy cows on the highland zones of Madagascar ................................................................................................. 61
J.H. Rasambainarivo, H. Razafindraibe, M. Rabehanitriniony,
R. Rasoloarison, E. Rafalimanantsoa, M.R.R. Barsona

Potential of fodder tree/shrub legumes as a feed resource for dry season supplementation of smallholder ruminant animals ............................................. 69
J. Simbaya

Enhancing the performance of cut-and-carry based dairy production in selected peri-urban areas of The United Republic of Tanzania through strategic feed supplementation ................................................................. 77
R. Nkya, B.M. Kessy, M.N. Shem, I.E. Mwanga

Evaluation of the comparative growth and reproductive performance of West African dwarf goats in the Western Highlands of Cameroon ........................................ 87
E. Tedonkeng Pamo, F. Tendonkeng, J.T.T. Kadjio,
H.N. Kwami, R.K. Taboun, J.R. Kana, A. Tegodjeu

Mineral supplementation in Tunisian smallholder dairy farms ........................................ 97
J. Rekhis, K. Kouki-Chebbi, B. Dhaouadi, K. Khilf

Evaluation of forage legume Lablab purpureus as a supplement for lactating Bunaji cows ................................................................. 103
L.O. Eduvie, P.P. Barje, E.K. Bawa, O.W. Ehoche, H.J. Makun,
V.O. Sekoni, P.I. Rekwot, N.P. Chiezey, J.O. Bale, A.E.O. Malau-Aduli,

Development and field evaluation of animal feed supplementation packages for improving meat and milk production in ruminant livestock using locally available feed resources ................................................................. 111
H. Bheekhee, B. Hulman, A.A. Boodoo, R.K. Rammauth,
R. Lam Heung Yuen, R. Fakim, B. Dobee
The effect of supplementation strategies on reproductive and productive performance of cows kept under different husbandry systems in Sudan......................................................... 121

Y.H. Elmansoury, M.M.M. Mahagoub, K.A. El Rabeea,
A.O. Idris, I.B. Mohammed, A.A. Majid

Mixed crop-livestock production systems of smallholder farmers in sub-humid and semi-arid areas of Zambia.......................................................................................... 135

J.C.N. Lungu

Livestock sector in Zambia: Opportunities and limitations................................................... 141

D.E. Daka

Some tools to combat dry season nutritional stress in ruminants under African conditions ................................................................. 145

T. Smith

Availability and feeding quality characteristics of on-farm produced feed resources in the traditional smallholder sector in Zambia .............................................................. 153

J. Simbaya

List of Participants ................................................................................................................. 163