RDR. No.62
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EDUCATIONAL CONSTRAINTS ON PEASANT AGRICULTURE

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INTRODUCTION: This paper arises out of a statement to the effect that there is a danger that our expertise in extension methods may outstrip our knowledge of farming. It has been implied on a number of occasions that there is a danger that we may develop an extremely efficient extension service with little or nothing to extend. Using material gathered in Embu District, Kenya and Mpigi Division Uganda, it is intended to look further into these statements.

In evaluating extension it is extremely difficult to prove that this or that method was effective or even that a farmer learnt a practice through a particular method So many factors are involved that it would be extremely difficult to prove conclusively that the educated farmer was necessarily a better farmer than his un-educated neighbour. The paper will therefore concentrate on determining trends and developing hypotheses for future testing. It is hoped also that the paper will reveal some gaps in our present knowledge.

Constraints on Peasant Agriculture

Lack of knowledge is by no means the only constraint on peasant agriculture and it would be well to examine educational constraints in relation to the overall picture. The following are thought to be the main constraints on peasant farmers in East Africa:-

a) Lack of knowledge of techniques and opportunities,
b) Lack of motivation for advancement and entrepreneurship,
c) Lack of stable markets for farm produce or lack of knowledge of markets.
d) Lack of capital for investment and social factors restricting saving,
e) Lack of a stable land tenure system,
f) Lack of adequate supplies of inputs such as seeds and fertilizers,

Informal Education of Farmers.

Farmers in the Embu neighbour sample were asked for the source of their knowledge about seven maize growing practices. The replies are analysed in Appendix A. Formal school education was scarcely mentioned as a source of information for these practices. However the Farmers Training Centre had the highest percentage of mentions with 29%. Other sources were Agricultural Department field staff (26%) and neighbours (21%).

The follwing table gives some indication of the proportion of farmers who are covered by Farmer Training Institutions.

Fig. 4 Attendence by Farmers or a Member of Family at or DFI.

Sample	Size of Sample	% that have attended FTC
Embu (neighbour sample)	77	42
Embu(Progressive Farmers)	19	79
		No. that have attended DFI
Nalyamagonja, Mpigi	76	2
Kimwanyai, Mpigi	46	1

Embu District is however particularly well served as regards Farmer Training. Appendix B shows that Embu has 695 families per bcd compared with an average of 1064 for the whole country. The figure for Mukono D.F.I. is estimated as about 3141 (number of holdings in West and East Mengo divided by 30). In view of the fact that the D.F.I. runs many sources for other departments this figure should probably be more like 5000.

The main fact about the Uganda situation is the extremely thin coverage both by the District Farm Institute and the Extension Staff. The following figures from the 2 survey areas speak for themselves:-

Fig. 5. Intensity of contact with Agric. Dept. Staff (2)*

Sample	Sample Size	Percentage of Farms visited at least once per annum.
Nalyamagonja	76	1.3
Kimwanyi	46	4
DFI Group	36	69
Embu(Neighbours)	77	75
Embu(Progressive)	19	84

Use of Educational Media

The fact that farmers are educated is an indication that they are able to make use of other educational media. One would expect greater use of books, radio, etc. Since the DFI Sample has the highest educational rating they were used to test this suggestion. The following preliminary results were obtained :-

Fig. 6. Use of various Media.

	Ex D.F.I	Kimwanyi	Nalyamagonja
% Having no printed matter in the home	22	77	78
% That never listen to the radio	19	30	41
% That listen to "Calling Farmers" (Uganda Radio Prog.)	87	37	39

*(2) From Extension programmes for food production and nutrition" Seminar on Agriculture and nutrition 1967 Kampala.

The State of Knowledge.

It is not necessarily so that those with education will have useful knowledge. An attempt has therefore been made to test the knowledge of those in the Kabanyolo Survey. Many of the questions concerned nutrition and the following represent a cross-section of the answers.

Fig. 7 The State of Knowledge (Kabanyolo Survey)

	Ex D.F.I.	Kimwanyi	Nalyamagonja
% Mentioning Nutrition in the prevention of Kwashiorkor	75	40	30
% That had heard of Artificial Insemination	91	71	50
% Knowing why the coffee price had fallen	65	47	42
% Knowing main world produeer of coffee	48	9	22

Adoption of Improved Practices

The last matter that concerns us is the question of farmers adopting recommended practices. This has been dealt within detail in a paper presented at the 1966 Social Science Conference in Nairobi. Further information has now been obtained in the Kabanyolo Survey. In the following table there is an indication of the extent of practice adoption:

Fig.8 Practice Adoption in the Kabanyolo Survey.

	Ex D.F.I.	Kimwanyi	Nalyamagonja
% Growing Citrus	91	45	41
% Using Fertilisers	29	16	10
% That have uprooted Coffee	19	6	1
% Planting Bananas in lines	75	43	46
% Using Jamaican planting method for bananas	9	0	0
% Using Dudubitoke to control Banana weevil	35	10	6

Indices of Success

For the assessment of economic success in relation to knowledge and the adoption of practices a more detailed study is needed. Success in the wider sense is much harder to assess. Other factors such as lessure preferences and stability of family life may be more important than returns to capital investment. It would appear from Fig.3 that education is not the only factor involved in becoming a successful farmer.

In the Kabanyolo Survey various questions were asked which might be used as indices of success in farming. The following are a selection:-

Fig.9 Possible indices of success.

	Ex D.F.I.	Kimwanyi	Nalyamagonja
% Having house costing over 5000 Shs.	17	8	1
Wages of labourers (Aver. wage/month)	35 Shs	32 Shs	30 Shs
% with school fee bill of over 1000 Shs	19	9	4
% growing sufficient bananas throughout year	52	19	26

No allowance has been made in these figures for non-farm income and it is not suggested that they are entirely satisfactory indices. What is wanted is an indication which could be used where a detailed input - output study is not possible. In the case of banana growing in Nalyamagonja it should be noted that 40% of farmers are non-Buganda.

With the large difference between market and farm prices of many food products there is a strong incentive to be self-sufficient particularly in bulky foods like bananas. Most farmers appear to have this subsistence preference and to some extent success could be judged on ability to provide certain subsistence needs. The following table indicates very little difference between the 2 Embu Samples:-

Fig.10 Maize buying and selling 1965-66 Embu District.

	Progressive	Neighbours
Bought and sold during the year	27%	17%
Sold only	36%	31%
Bought only	16%	30%
Self Sufficient	21%	22%

Constraints due to lack of Education.

From what we have seen above it would appear that lack of formal education reduces knowledge of several matters affecting agricultural production. Lack of knowledge of nutrition, for instance, can act as a constraint on agricultural production in the following ways:-

a) by reducing energy for agricultural tasks,
b) by reducing time available for agricultural tasks because of visits to hospital or dispensary,
c) by inducing lethargy and lack of motivation for improvement,
d) by producing a misallocation of resources to different crops (e.g. possibly emphasing matoke to the detriment of legumes).

To quote a medical report "much labour in tropical countries is notoriously inefficient at present and there is stiking evidence of the extent to which this is due to malnutrition" [3]

On the other hand lack of formal education can be compensated for by resourceful individuals. It is noticeable in Fig.2 that the Embu Farmers Training Centres caters to a considerable extent for those without formal education. Perhaps this should increasingly be the trend in the use of these Centres. One wonders why, in the case of Mukono, those attending courses are so atypical of the general

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3, First Report of the British Economic Council on Nutrition (1944) page 92

population. Those with formal education should be in a much better position to get their information through other channels.

In the large scale farming areas of Kenya Mr. Ware - Austin has pointed out[4] that African farmers do not "have the same channels of communication as the previous European owners". The dependence of farmers on personal contact is demonstrated in Appendix A. Such dependence is not surprising because of the undeveloped state of other forms of communication.

In the case of Uganda there is no farming newspaper and the agricultural content of the national newspapers is quite inadequate. The European owners mentioned above, in addition to subscribing to journals like the "Kenya Farmer", probably also obtained a lot of information from neighbours and friends. Field days and agricultural shows have an important effect of increasing this informal spread of knowledge, particularly of new techniques.

The rural youth organisations in both Uganda and Kenya have expanded rapidly over the past few years. Both organisations have consistently stated that they are community based[5] and cater for those who do not go to school. However in the U.K. Survey conducted in Embu District only 1 out of 57 had had no education. Yet according to the Ominde report primary schools in Kenya take in only 55% of eligible children[6]. The fact that the recent Marco Survey report[7] deals only with U.K. members in schools seems to indicate that the non-school going children are not being adequately catered for. In Uganda Young Farmers Societies are often sited at schools and it must be difficult not to avoid the impression that the Society is for school-going children.

Constraints due to type of Education

Discussion on the contribution of education to economic development have often failed to look at education qualitatively. The academic-secondary-school certificate orientated educational system was geared to creating an elite group. Even today East African primary schools are geared through the leaving certificate towards getting the maximum number of pupils to secondary school. As the school certificate becomes less of a guarantee of a job the pressure for this gearing should be reduced.

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4. Mr. W.D. Ware-Austin - quoted on p.21 of "Farmer Training Institutions in East Africa" pub. by FAO. Rome 1966.
5. Mr. J.K. Ndegerege "The Principles of Entension Rural Youth work applied to Africa". Min. of Agric. Nairobi.
6. S.H. Ominde "Kenya Education Commission Report" Part I. Nairobi 1964.
7. G.M. Wilson "Kenya Rural Youth Survey" USAID, Nairobi, 1967.

Thomas Balogh[8] has put up a case for a new approach to primary education to get away from the old European pattern. The Tanzanian "Education for Self-Reliance" policy puts up a similar plea. Perhaps the greatest obstacle to education having a great development impact is that it does not produce entrepreneurs. Stephen Carr[9] has pointed out that institutional training does not equip boys for the hard life of developing a farm. Both the Uganda and Kenya Education Commissions have pointed to the failure of agriculture as a primary school subject in the past.

Institutional training of any sort is expensive. Guy Hunter[10] gives figures of £5 per pupil per annum in primary, £125 in boarding secondary and £950 in university. At the Kikuyu Conference (see ref. 9) figures of £150-350 per boy for farm school training were given. Cost of the Nyakeshaka settlement scheme worked out at about £75 per boy.

Detailed costs of the Kenya 4.K. programme have not been worked out but it is thought to be costing about £3-4000 per annum at present. For a membership of 24,995 members (1966 figures) this works out at between 2 to 3 shillings per member per annum. One of the best things about the programme is that it develops with virtually no increase in staff. Clubs are designed to run themselves with volunteer leadership.

To introduce agriculture effectively in schools will take a long time and will involve considerable expense. An extensive teacher training programme would be needed and equipment and staff costs would be considerable. In view of the time element and the high costs of a national programme there is surely a case for stepping up expenditure on organisations like the 4.K. Clubs in the meantime.

One other aspect of the 4.K. Club is its emphasis on home projects. Whether for the school-going or the non-school going child this is a most useful first lesson in entrepreneurship. Restrictions on trading in East Africa[11] have largely prevented young people from developing as entrepreneurs as they do in west Africa. What better way of developing entrepreneurs than the keeping rabbits for sale at a profit.

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8. "Education and the Development of Nations" Edited by Hanson and Brembeck. Holt, Rinehart and Winston. USA 1966 p.160.
9. Stephen Carr "The settlement of school leavers in Uganda". Paper given to Conference on the Contribution of Vol. Agencies to Rural Development, 1967.
10. Guy Hunter "The Best of Both Worlds" OUP. London 1967 p.99.
11. For further details see:-
    O. Okereke "A historical outline of the development of the Co-operative movement in Uganda" RDR No.59.

Naylors USAID "Baseline Survey"[12] gives an impressive list of Correlations between education and farm practice. Moris[13] has pointed to the need for caution in intepreting these. He also states that "the distinguishing characteristic of the progressive farmer is his adept management of both money and labour". If education leads to misallocation of resources onto non-productive items like second hand cars then it could easily have a negative effect on productivity. One might speculate what would have happened in Buganda if during the coffee boom less money had been spent on Cars and more on grade cattle, water tanks, fencing, etc.

Conclusions.

The paper has not set out to provide proofs so much as to suggest lines for future study. It is clear that entrepreneurial capacity is a key factor in developing peasant agriculture. The fact that many progressive farmers are ex-businessmen rather than highly educated people is but one indication of this. What is needed therefore is an informal and formal educational structure that is geared to producing entrepreneurs. Further study is needed on the factors inducing entrepreneurial capacity in farmers.

The paper gives some estimates of cost for various types of education and suggests that further resources might be channeled towards developing rural youth organisations. Such organisations may need to cater more in the future for those who are not fortunate enough to go to school.

It is pointed out in the paper that educational constraints are only a part of the total constraints on peasant agriculture. If any one of the other factors are neglected the beneficial effect of education may be outweighed. In promoting agricultural development the whole picture of markets, supplies, credit, etc. must always be born in mind.

The paper indicates that there is a lack of knowledge amongst farmers on matters which affect agricultural productivity. There is thus considerable scope for more extension work. In Uganda, where extension staffing is very inadequate, a greater emphasis on group methods such as demonstrations may be necessary. In an appendix a list of practices for emphasis in the Buganda region is given on the basis of experience with the Kabanyolo Survey.

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12. H. Naylor and J. Ascroft "A baseline survey of factors affecting agricultural development in 3 areas of Kenya" USSC paper No.345 E.A.I.S.R. Jan. 1966.

13. J. Moris "Farmer Training as a strategy of Rural Development" Report of Kenicho Conference 1966. E.A.P.H. Nairobi.

APPENDIX A

INFORMATION SOURCES FOR MAIZE GROWING PRACTICES

EMBU DISTRICT, KENYA

Farmers in the "Neighbour" Sample were asked from whom they had learnt about the following practices. The table gives a summary of their replies.

Information source specified	Good Seed	Early Planting	Spacing	Fertilizer	Insect Control	Weed Control	Boma Manure	Total	%
Neighbour	8	14	11	16	13	4	13	79	21
Traditional knowledge or parents	14	3	-	-	-	6	8	21	6
Formal Education*	-	-	-	1	1	-	-	2	-
Experience	4	4	-	-	-	6	8	22	6
								33	
Agricultural Department:-									
FTC Staff	17	15	23	19	15	12	7	108	29
Research station	4	1	5	3	2	-	3	18	5
Individual field staff:-									
AO & AAO	-	-	-	-	-	-	-	-	0
T.A.	12	9	10	9	7	6	6	59	16
A.A.I.	5	5	6	7	8	2	4	37	10
Combination (demonstration, field days, etc.)	3	3	5	4	5	5	3	28	7
								374	100

*Included St. Marks College and Jeanes School, Kabete.

N.B. This appeared as an appendix to "A study of Agricultural Extension in the Embu District of Kenya" by the author. USSC Paper PL 4/2 Nairobi 1966.

APPENDIX B.

Families served per F.T.C. bed
for Farmer Training Centres in Kenya.

Centre	Beds	Families Served	Families/FTC bed Served
Bukura	100	145,800	1458
Maseno	32	107,400	3356
Kisii	103	115,900	1125
Kabianga	70	36,000	5143
Baraton	60	30,000	5000
Chebororwa	50	85,000	1700
Machakos	80	82,000	1025
Kitui	60	50,000	833
Embu	42	29,190	695
Kagurtu	86	81,000	942
Wambugu	106	45,240	427
Waruhiu	28	37,270	1331
Kenyatta	53	80,000	1509
Coast	50	54,330	1087
Total	920	979,130	1064 (Av.)

Compiled from figures supplied in "Farmers Training Centres in Kenya at 31st December 1964" by C.W. Barwell Ministry of Agriculture And Animal Husbandry, Nairobi.

APPENDIX C

THE KABANYOLO SURVEY

INTRODUCTION:

This Survey is part of a series of extension studies being undertaken in different parts of East Africa.

QUESTIONNAIRES:

The questionnaire used covered Household Background, Farm Communication, Robusta Coffee and Banana Practices, Nutrition Knowledge and Practice, Farming Knowledge, Crops, Labour & Credit, and Farm Improvement. The questionnaire was pre-tested for 2 weeks and revised.

SAMPLES:

3 100% samples were taken within a 5 mile radius of the University Farm, Kabanyolo. They were:-

a) Nalyamagonja Village:

This village is within the Kasangati Health Centre defined area. It had thus had considerable contact with Health Visitors and was chosen by the Health Educator as being representative of the area.

b) Kimwanyi Village:

This village was selected as being approximately the same distance from the Health Centre and from the main Bugerere - Kampala road. It proved however to have a higher proportion of Baganda as opposed to immigrants and the results should be interpreted in the light of this.

c) Farmers that have attended DFI

A list of farmers who had attended the Mukono DFI was obtained and all those from within a 5 mile radius of Kabanyolo were visited.

SIZE OF SAMPLES

	No. in Sample	No. completing questionnaire
Nalyamagonja	82	76
Kimwanyi	52	46
D.F.I. Mukono	36	32
		154

2/.....

BACKGROUND INFORMATION

Tribe:	Nalyamagonja %	Kimwanyi %	DFI %
% Baganda	60	85	97
Age:			
Average age of farmers	48	48	42
Land Ownership:			
Freehold by Purchase	7	13	16
Busulu Tenant	77	72	75
Inherited	16	15	9
Mobility:			
% Visiting Kampala daily	8	9	16
% Visiting Kampala Weekly	22	40	66
% Visiting Kampala monthly	16	16	15
% Visiting Kampala 1 or 2 X per annum or rarely	54	35	3

Definition of "Farmer":-

The person questioned as the "Farmer" was the person responsible for the day to day running of the farm. In most cases this was the husband and if he had a job arrangements were made to question him at the week-end.