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AN EXTENSION, TRAINING AND EVALUATION PROGRAMME FOR SMALL CANE GROWERS

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Abstract

A project was initiated to investigate how to convey successfully information on sugarcane technology in a way that would suit the small cane grower in KwaZulu and thereby increase his cane production. After 2 years the standards required for good management of ratoon cane had been understood and adopted by 83 % of the target group of growers and, in so doing, the group had increased its sugarcane production by 123 %. The project established that by working with a small group, growers were helped to identify the limitations of their current practices and accepted and implemented new technology. The eventual success of the project can only be measured over a much longer period in terms of the group sustaining the improved management practices, increased cane production, and profit.

Introduction

In order to ensure that all of the services offered by the South African Sugar Association Experiment Station should be available to the small cane grower community in KwaZulu, it was necessary to establish how the interests of the Zulu grower might best be served.

A preliminary survey of the situation and of the services available to registered growers in KwaZulu confirmed the findings of Bembridge[3], Erskine[4], Makhoba[9], Mbatha[10], Quicke[12], Sokhele[14], Thorington-Smith *et al.*[15] which underlined the need to initiate and develop group involvement and self motivation of growers. Development amongst this selected group was likely to be limited due to lack of quota land, illiteracy, absentee growers, and also a poor knowledge of cultural practices.

It was decided that communication with groups of Zulu growers would be by means of the introduction of training in effective cane husbandry. The training programme was to be introduced, developed and perfected as a pilot project (Bembridge[3]; Erskine[5]), and would be extended and replicated in other mill areas if requested.

It was established that the sugar milling companies provided the KwaZulu growers with a comprehensive development service but made little provision for adult education and the training of skills. It was also apparent that growers lacked the knowledge to manage a sugarcane ratoon crop effectively. The KwaZulu Department of Agriculture and Forestry extension service was not able to provide an effective service to the KwaZulu cane grower. An obvious requirement was a method of effective communication (Vincent[17]) between the Zulu growers and the staff of the South African Sugar Association Experiment Station.

Because the growers had to be made aware of the limitations of their current practices and because adult learning cannot simply be imposed but has to be encouraged and maintained in the individuals, it was important to establish visible standards of appropriate ratoon cane husbandry so that even a casual observer should be impressed. (Travers[16]).

The pilot project involving a small group of KwaZulu cane growers near Illovo was started in September 1983 and was concluded in July 1985. The objectives were to:

- increase cane yields as a result of adult education, group involvement, and self-motivation
- establish the best method of communicating information on ratoon management technology among a small group of Zulu growers
- evaluate the effectiveness of the system of communication.

It was decided that those who implemented the plans must make the plans (Peters *et al.*[11]) and that the involvement and participation of the growers themselves was important (Le Roux[8]).

The project was designed to be practical, and included group discussion (Bradfield[2]), evaluation and report-back sessions, where growers were encouraged to be participants rather than spectators.

Method

Groups involved

The project group comprised 36 registered small cane growers of varying ages and levels of education, and who were considered to be reasonably representative of the 1 826 growers living in the Umbumbulu/Illovo cane supply area of KwaZulu. They are situated close to the main Winkelspruit/Pietermaritzburg road and have easy access to the milling company subsidiary, Pez'Kwomkhono Ltd, which was formed in 1977 to increase the sugarcane production areas of KwaZulu that are close to the Illovo mill. (The English translation of the name is the Red-chested Cuckoo and its earlyspring call is linked by the Zulu people to the first spring rains and the need to cultivate their crops.) The project group was to deliver their sugarcane to loading zone 44 Ntinyane, one of the 32 loading zones in the Illovo cane supply area of KwaZulu.

The group was divided into four with each of four extension officers assuming responsibility for the activities of a sub-group. The four extension officers involved in this project were representatives from the KwaZulu Department of Agriculture and Forestry, the SASA Small Cane Growers' Financial Aid Fund, Pez'Kwomkhono Ltd, and the SASA Experiment Station.

The achievements of the project group would then be compared with those of the control group which delivered their sugarcane to loading zone 76, and were similar to the project group in situation, area and number of growers. For the project and control groups respectively, the total measured area under cane was 41,3 and 45,0 ha; and the number of growers, were 36 and 39. The average area per grower was thus 1,15 ha for both groups. For the Pilot Project, the practical implications of each picture shown in Appendix I, II and III were demonstrated, practised and discussed in the fields of the grower group.

Providing the opportunity for growers to implement the necessary practices is the key to adoption of a new idea (Anderson[1]; Scheu[13]).

Topic

The most sensitive issues were the effort that would be required from the grower and his reaction to the results that were obtained. It was therefore important to choose an aspect of cane growing that would give the greatest increase in productivity. Ratoon management was chosen and comprised the practices of weed control and feltilizer application. A third component was added when it became apparent that the quality of cane delivered to the loading zone was poor.

Assessment

The exercise to improve weed control involved a simple, regular visual assessment of each grower's weed problem by rating the size of the weeds numerically. Monthly appraisals were made in summer by the four extension officers with the grower and his representative.

The grower was requested to rate the size of the weeds numerically on a scale of 1 to 4 which had previously been demonstrated, where rating 1 was excellent weed control and rating 4 was bad weed control. The ability of the growers to rate accordingly was thus determined and any weeding done was recorded as an improvement and proof of adoption of this practice.

An improved standard of fertilizer application was incouraged using the 'tin and string' method instead of the traditional and inaccurate practice of broadcasting fertilizer from a basin. A tin containing a known quantity of fertilizer was applied to a measured length of cane row using a fixed length of string. This method was also demonstrated at a field day and during follow-up visits the method of fertilizer application used by the grower and the number of bags of fertilizer used were recorded.

To add further interest and to answer some of the questions raised which were nor pertinent to the two specific topics already discussed, field days were also held in the area on subjects of topical interest, such as 'the cane payment system', controlling weeds with herbicides, factors affecting cane quality, pests and diseases. Lectures, method and result demonstrations, visits to the mill, visits to selected growers and to growers in other districts, group discussions and group report-back sessions, were used to promote interaction among members of the project group as well as enriching the adult learning experience (Wilson *et al* [18]).

Field demonstrations

Thirteen field days were held during the period, each preceded by a 'preparation day' and followed by an 'evaluation day'. Regular monthly meetings of the project team were held to focus attention on evaluation.

The additional component of the ratoon management theme, quality of harvest cane, was introduced to create an awareness in the growers of the benefits to them of correct base cutting and topping. Trashing was not included as all the cane is burnt before being harvested manually by contractors.

Results

By measuring the degree of weed infestation, and stimulated by the symbolism of 'Pez'Kwomkhono', a simple and clear message was developed which motivated frequent weeding operations, and most important of all, established a standard for better weed control. Thirty-two of the 36 growers adopted and used the weed rating system.

The improved 'tin and string' method of fertilizer application was successfully adopted by 30 (83%) of the 36 growers.

In the final analysis 83%, out of the 36 growers, decided to adopt the better ratoon management practices of improved weed control and adequate and even fertilizer distribution, and to demand a better quality of harvested cane from the contractors.

The tons of cane produced during the past 10 seasons by the pilot group and the control group of growers are given in Figure 1. The cane production of the past two years illustrates the results of the pilot project to date, as the project started in September 1983 and its impact could only first have been measured in 1984.

Discussion and Conclusion

The fundamental problems in rural communities are those of ignorance of agricultural practices due to illiteracy and low standards of education. These are aggravated when agencies working for development in these communities have little knowledge of the value of adult educational programmes, grower involvement, and opportunity for self-motivation (Peters *et al.*[11]).

Clearly the logistics of a face-to-face extension approach in KwaZulu are not feasible because of the large numbers of registered small cane growers (21 539). Therefore contact with the growers is possible only by working with groups. The advantages of including the representatives of the groups of growers in the planning and assessment stages of the project were evident by the working relationship that developed with the leader of the project group, who kept the project alive.

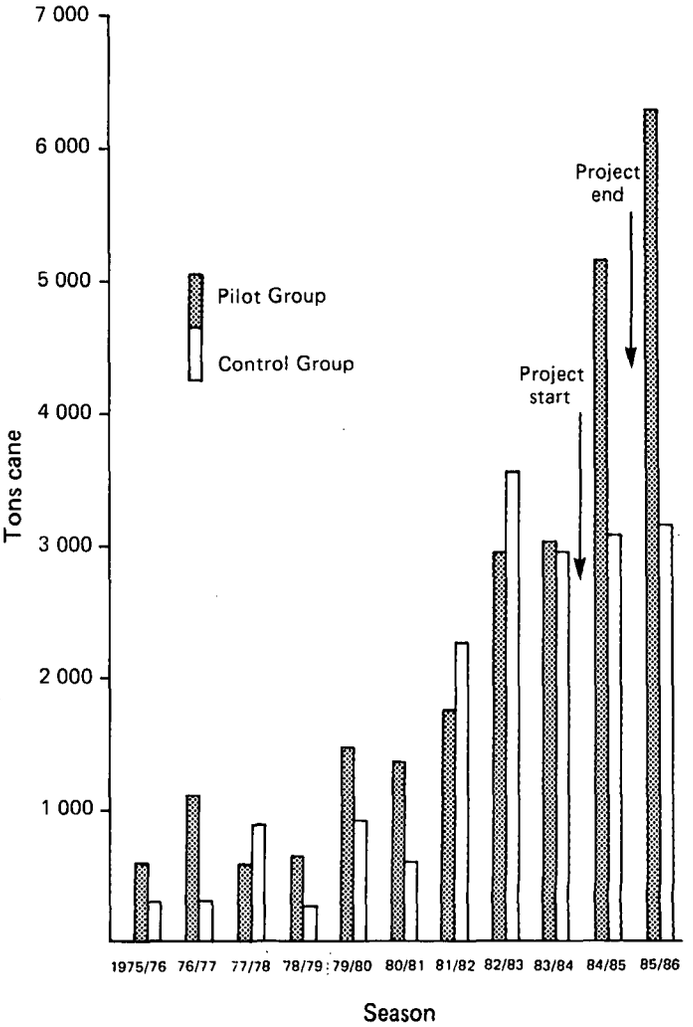

FIGURE 1: Tons cane produced in the pilot and control group areas from 1975 to 1986.

A follow-up programme is essential if the standards of good cane husbandry are to be maintained indefinitely or improved in the area. The project group members representing Pez'Kwomkhono Ltd and KwaZulu sugar extension specialist services should be able to achieve this on a planned and regular one-day a month basis.

It is also important to broaden the scope of this project by offering similar adult education and evaluation programmes to include the social grouping of the pilot project area and to offer it to groups of growers in other mill areas.

Acknowledgements

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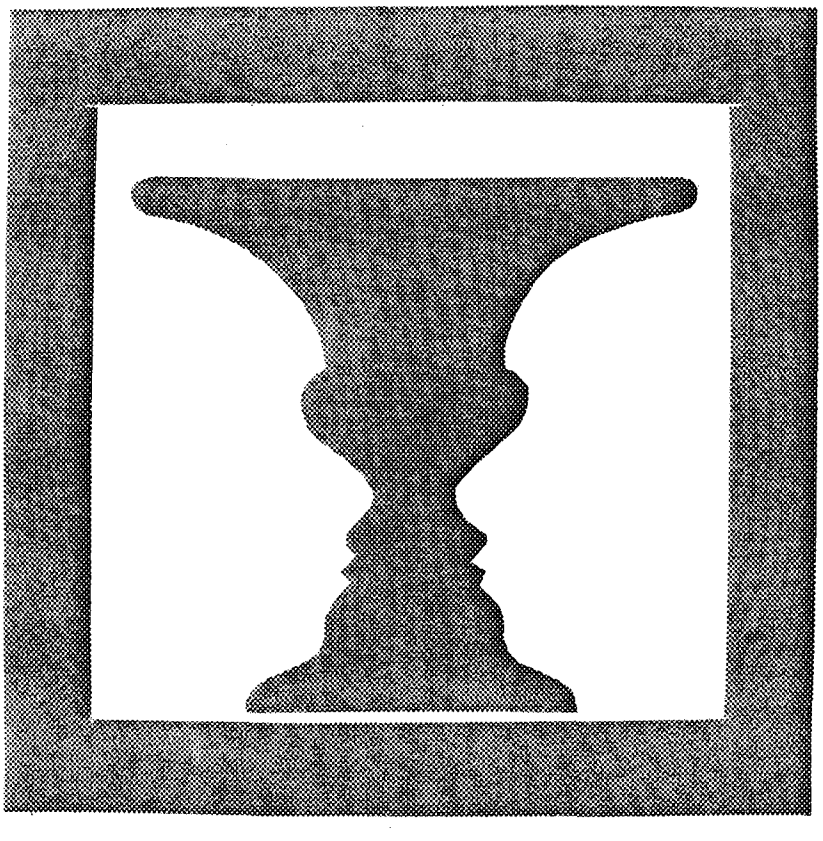
REFERENCES

1. Anderson, J and Kerr, H (1968). A check list for evaluating educational research Vol II, No 1. University of New England, Australia: 74–75.
2. Bradfield, DJ (1966). A guide to extension training. Published by Food and Agricultural Organisation of the UN, Rome. Group discussion: p121.
3. Bembridge, TJ, Steyn, GJ, Williams, JLH (1983). An evaluation of the KwaZulu extension service. A research report 6/83 Agricultural and Rural Development Research Institute, Fort Hare, P/Bag X1314, Alice, Ciskei. piv, 1, 134, 199.
4. Erskine, JM (1981). Rural development studies at the Institute of Natural Resources. Rural studies in KwaZulu. *Proc Symp Univ Natal, Pietermaritzburg*: 162–164.
5. Erskine, JM (1979). Agriculture in KwaZulu: A report on a strategy for the involvement of KwaZulu Development corporation in Agricultural Development in KwaZulu. KwaZulu Development corporation. p89.
6. Geldard, FA (1963). *Fundamentals in psychology.* John Wiley & Sons, New York. p249.
7. Laver, SML (1983). Interpreting visual material prepared for agricultural extension in Zimbabwe. *Zimbabwe Agr J* Vol 1, 80(6): 231–234.
8. Le Roux, EA (1982). Development and extension. Report on a visit to the Netherlands. 30th International course, P/Bag X05, Ulundi: p24.
9. Makhoba, EB (1985). An investigation into poor participation of farmers in sugarcane production in the Ndwedwe district with special reference to Ntapluka region. Thesis for Diploma in Agricultural Extension, Department of Agricultural Extension and Rural Development, University of Fort Hare. p56.
10. Mbatha, JG (1983). Sugarcane production by Zulu cane growers in Reserve 8 of Ngoye district. Thesis for diploma in Agricultural Extension, University of Fort Hare, P/Bag X1314, Alice, Ciskei. p17.
11. Peters, TJ and Waterman, RH Jnr (1982). In search of excellence. Warner Books, USA. pXX and 31.
12. Quicke, GV (1982). Rural studies in KwaZulu. *Proc Symp Univ Natal, Pietermaritzburg.* p127.
13. Scheu, GI (1977). Production and evaluation of a culturally adapted sound-slide presentation. Thesis for a Diploma in Adult Education. University of Zimbabwe, Institute of Adult Education, Box MP 167, Mount Pleasant, Harare. piii.
14. Sokhele, MP (1983). Small-scale sugarcane production, with special reference to Pez'Kwomkhono Development Company in Umbumbulu district, KwaZulu. Thesis for Degree of Bachelor of Agricultural Extension (Honours), Department of Agricultural Extension and Rural Development, University of Fort Hare, P/Bag X1314, Alice, Ciskei. p11.
15. Thorington-Smith, E, Rosenburg, M and MyCrystal, L (1978). Towards a plan for KwaZulu. A preliminary development plan. Consultants, Box 2313, Durban 4000, p12.
16. Travers, RMW (1950). How to make achievement tests. Odessey Press, New York. pV.
17. Vincent, V (1962). Extension methods in southern Africa. *Proc SARCUS.* Government Printer, P/Bag X85, Pretoria, 0001. p26.
18. Wilson, MC and Gallup, G (1954). Extension teaching methods. Federal Extension Service, Circular 495, US Department of Agriculture. p19.

APPENDIX I



Peter-Paul Goblet

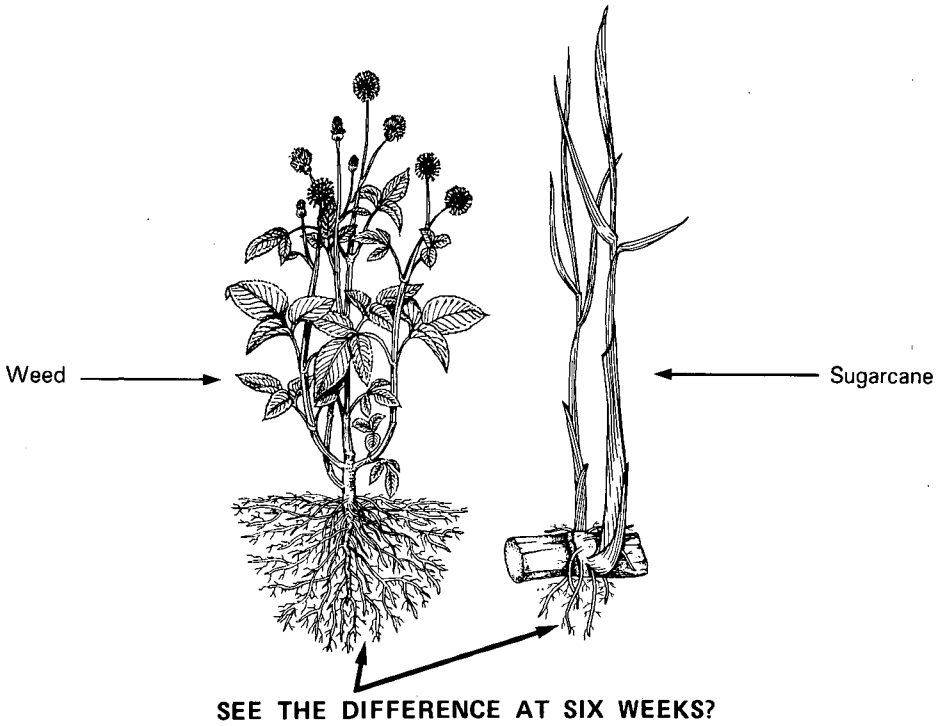
APPENDIX II

The Cow

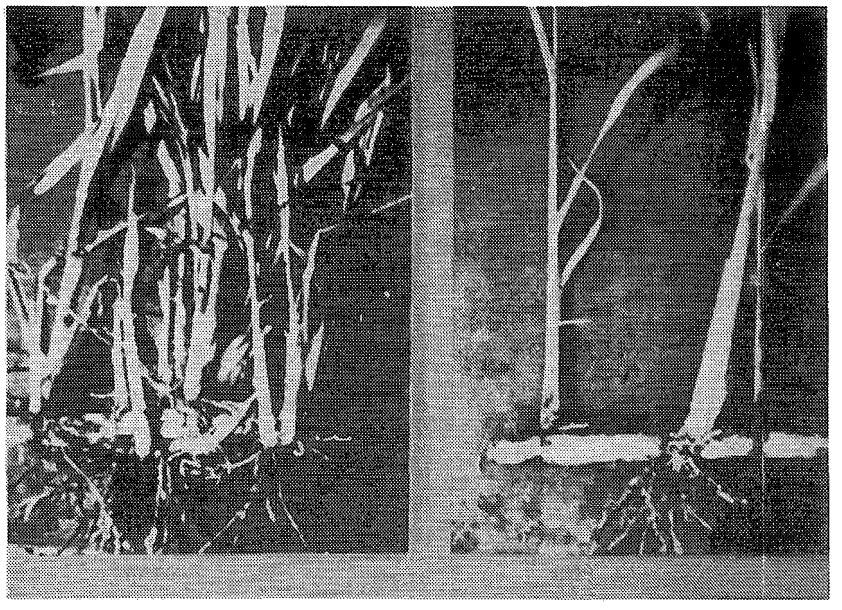
APPENDIX III

Reasons for better weed control

The lack of effective weed control is the main reason for poor sugarcane yields in KwaZulu.



Remember you get more cash for trash and less weeds



See the effect of weeds on plant cane