

“OPERATION LOW TOP” - A PLANNED PROJECT IN THE UMVOTI AREA

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Abstract

“Operation Low Top” is an example of an extension project for planned strategical change. Over-production, cane restrictions, the fuel crisis and related facts led to the formulation of a plan to try and persuade all growers in a single extension area to top their cane lower and more accurately. Node by node cane analysis made it possible to predict a substantial increase in sucrose percent cane if the practice was adopted. Newsletters, farmers meetings and face to face discussions were used to launch the project. Weekly and monthly cane quality and mill performance figures enabled progress to be monitored. Targets set for improved cane quality were exceeded but the very mature nature of the cane and climatic conditions also contributed towards this success.

Introduction

The Extension Division of the SASA Experiment Station has for many years operated as a successful but passive organ for disseminating information on request and through periodic symposia and group meetings, but active campaigning in the field has been limited to projects such as the introduction of hot water treatment of seedcane. This paper provides an example of what can be achieved by an active extension campaign through programme planning and objective setting, as described by Paxton¹.

Late in 1978 the Head of the Extension Division called on each extension officer to propose a special project that could be implemented in his extension area. He stressed that the objectives of these projects should be attainable in practice, and of such a nature that they could be effectively evaluated after completion. “Operation Low Top” is an example of one such project and its objectives, implementation and evaluation are described in this paper.

Situation

In the Umvoti area since 1975 the overall extension objective has been to increase sugarcane crop production per unit area. Production restrictions in 1978 and 1979 made it necessary to modify this objective. Increased production could not be promoted when about 15% of the harvestable crop in the area remained uncut at the end of 1978. Much of this cane was lodged, and the average age of cane at the time of harvest during the following season was expected to be 26 or 27 months. Factors which had to be considered in conjunction with this overproduction included the national liquid fuel shortage, increased fuel prices and the generally low sucrose content of the cane produced in this area. The Union Co-op mill had consistently recorded the lowest sucrose percent cane figures in the industry, and the Noodsberg mill was usually next lowest. Another consideration was the fact that all Noodsberg growers were paid simply for tons of sucrose delivered to the mill, while Union Co-op members had a direct interest in the amount of sugar recovered from their cane at the mill. Lastly, local topping standards had been observed to be so poor that in the 1978 season on many farms cane was topped even above the meristem (see Figure 1).

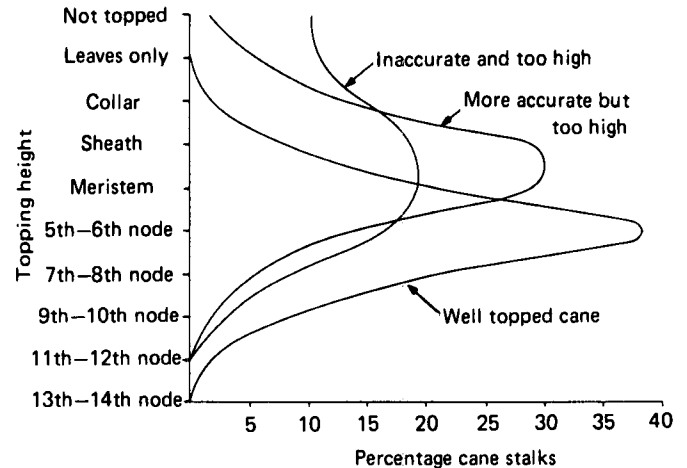


FIGURE 1 Distribution curves of topping height and accuracy of topping achieved by different local cutters.

After careful consideration it was postulated that every cane grower could save a considerable amount on transport costs while still fulfilling his restricted sucrose quota, if he could be persuaded to instruct his cane cutters to top the cane lower and more accurately. Such a project was within the modified overall objective of assisting cane growers to farm effectively when crop production was subject to restriction. It was thought that the project might contribute to improved profitability in other ways as well. Node by node cane analyses that had previously been done at the Experiment Station provided the data for establishing optimum topping heights, and helped to determine the implications of better topping including the savings that could be expected.

Plan

It was planned to try to persuade all Co-op members with carry-over cane, and the Noodsberg Miller-cum-Planter, to start the 1979/80 season by topping their cane 300 mm lower than they had in the past. Noodsberg growers with carry-over cane were to be advised to top their cane 200 mm lower than previously. Even those growers fortunate enough to have no carry-over cane were to be advised to lower their topping height by 100 mm, or from close to the meristem to about the base of the fifth or sixth node. Weekly and monthly mill performance data were available for monitoring the success or failure of the project and individual growers were able to compare their achievements with those of their neighbours', or with their own previous records. Furthermore, it was decided that topping heights could be adjusted up or down during the season depending upon the ripeness of the crop.

In a newsletter to all growers in the area, sent out in March 1979, it was forecast that if these suggestions could be implemented, "... the Co-op sucrose would rise from 11,9% (five year average) to about 13% and that at Noodsberg it would rise from 12,2% (five years average) to about 12,7%". The first calculation of the theoretical value of the campaign in terms of savings in transport and crushing costs was R350 000.

Implementation

To implement the plan discussions were held first with prominent mill personnel from both mills, leading cane growers and various members of Experiment Station staff. The project was then launched with the March 1979 newsletter to all growers. Figure 2, taken from that newsletter, illustrates one of the ways in which the case for lower topping was presented. Next, farmers' meetings were arranged and discussions took place at Wartburg, New Hanover, Dalton and Kranskop.

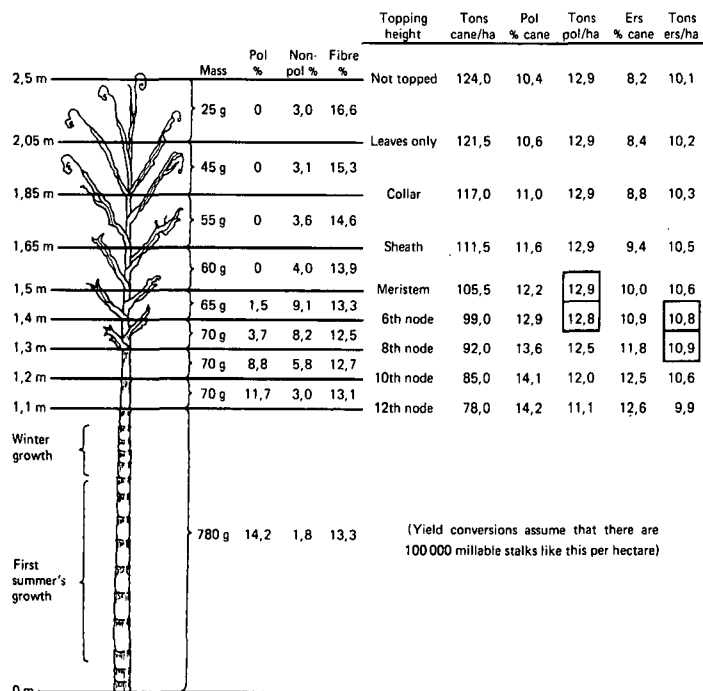


FIGURE 2 Analysis of typical early season burnt cane grown in the midlands, showing various topping heights and their effects on yield and quality.

The services of the Experiment Station Training Department were then enlisted, and four separate courses were held for local cane cutters. Neighbouring farmers were invited to bring their cane cutting supervisors (Indunas) to watch and discuss the recommended operator training methods.

Topping cane lower requires more physical effort on the part of the individual cane cutter and more accurate topping requires additional training and constant concentration. Growers were therefore asked to adjust tasks and wages to compensate for this increased input.

Many individual field checks and discussions were held with farmers, their cane cutting supervisors and the cane cutters themselves to persuade them to improve; to instruct them in methods of more accurate topping; or even to re-assure them and compliment them on a job well done.

One problem that had not been anticipated was that the greater length of top left in the field at the beginning of the season led to greater difficulty being experienced in raking and re-burning of tops.

Each month the mill average figures for sucrose percent cane were presented graphically in the regular follow-up newsletters, and as the cane ripened, recommended topping heights were raised.

Evaluation

The average monthly sucrose percent cane for the five years from 1974 to 1978 and data for the 1979 season for the

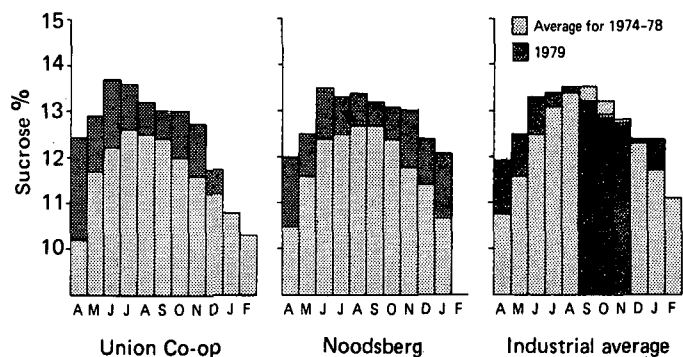


FIGURE 3 Average sucrose % cane for 1974-78, and figures for 1979.

two midland mills and the industrial average are presented in Figure 3. The average sucrose percent cane for 565 376 tons of cane at the Union Co-op mill was 13,03% or, 1,25% units above the five year average. At the Noodsberg mill, for 1 278 471 tons of cane the final sucrose percentage was 12,99%, or 0,81% units above the five year average. Until the end of December, the industry as a whole had crushed 18 013 087 tons cane, the average sucrose % cane being 12,9% which was 0,25% units above the five year average.

Had sucrose levels in this area not increased as they have, and remained at an average of the last five years, then an additional 145 000 tons of cane would have had to be moved to achieve the same total of sugar manufactured in the 1979/80 season. At present fuel costs and assuming an average haulage distance of 10 km, a saving of about R500 000 has thus been made in haulage and milling costs.

In carrying out the project, it was estimated that two-thirds of the growers in the Umvoti area deliberately instructed their cutters to top their cane lower this season. However, other independent assessments gave a lower estimate of the extent to which the recommendation was adopted.

A significant fact is that the Union Co-op's board of directors have asked for the campaign to be continued for another season.

One qualitative method of evaluating this project was to look carefully at the cane in any loaded haulage vehicle proceeding to the mill. A trained eye could readily detect which growers were topping well and which were not. Observing the stacks of cane under the gantry or in the mill yard also gave a good indication of how "Operation Low Top" was proceeding.

It is not claimed that this campaign was the only reason for the improved sucrose percent cane for the season. Mature cane, the dry autumn last year, a mild winter and the dry spring were undoubtedly also contributing factors. However, the facts that the Co-op and Noodsberg mills improved from being last and last but one in the industry, to above the industrial average, and that the average sucrose percent cane was higher at the Co-op than at Noodsberg for the first time, are strong indications that the campaign "Operation Low Top" had a significant effect. In terms of extension effort, this project consisted of :

- Writing and preparing part of eight newsletters.
- Planning, organizing and holding four farmers' meetings.
- Planning four cutting courses run by the Training Department of the Experiment Station.
- Monitoring accurately the topping heights achieved by 10 or 12 selected cane cutters, before and after training.

- Conducting a time and motion study for three days on various topping techniques in the field.
- Visiting mill officials and the Central Board chemist regularly to monitor cane quality and mill performance.
- Talking to farmers, supervisors and cane cutters at every opportunity and doing spot field checks.
- Preparing and presenting two report back papers for the Low Sucrose Co-ordinated Project at the Experiment Station.
- Preparing this paper.

It is estimated that less than 10% of the total available time of two Extension Officers was spent on this project.

Conclusion

“Operation Low Top” appears to have been successful, but of greater importance is the evidence that the Extension Division of the Experiment Station can set targets or objectives and programme its activities to achieve those objectives successfully. Furthermore, results can be monitored and used for re-planning.

It is important that all planning, whether it be research planning, extension programme planning or simple field or farm operations planning, can be more effective if the following step by step procedures are adopted :

1. A thorough *appreciation* of the given *situation*.
2. Formulating the *plan* and setting realistic *objectives* and *targets*.

3. *Organizing* and *controlling* the *implementation* of the plan.
4. *Monitoring* and *recording* results while retaining sufficient *flexibility* to modify or improve the plan.
5. *Evaluating* the whole plan when it has run its course in order to *re-plan* or start again on a new strategy for change.

It will not always be possible to set objectives which are so easily evaluated. Indeed, many very worthy objectives will be extremely difficult to monitor but active programme planning itself will undoubtedly increase the effectiveness of extension in helping the industry to plan and programme its future.

Acknowledgements

Thanks are due to everyone who has been involved in the implementation of this project, in particular the farmers, their “indunas” and the 1 500 men and women who toiled for long hours in the sun at the cutting face; without their co-operation this project would have failed.

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REFERENCES

1. Paxton, R. H. (1980). A strategy for extension in the South African Sugar Industry. *SASTA Proc 54* (in press).