

A FARM FIELD HISTORY CHART FOR WORK PLANNING AND CONTROL

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Abstract

A field history chart for use in farm work planning and control is described. The method of operation of the chart is discussed and the advantages of the system are enumerated.

Introduction

At Melville Sugar Estates management planning on the farms is divided into two main phases. Firstly there is the annual programme planning (Thompson and Moberly¹) which consists of items such as an estimate of the fields to be harvested, the dates of harvest, the tonnages expected, which fields will be replanted, the quantities of fertilizer and herbicides needed and when, the labour required to harvest the crop and maintain it, the equipment needed and the money that will have to be spent. Secondly there is the operations planning which is done shortly before the work is performed. This paper is mainly concerned with the latter type of planning.

For the day to day operations planning on a sugar cane farm, the farm manager must have access to recent historical information from his fields. Having the information filed away is often not adequate because the information is not readily available. The manager also needs to have on record his observations of field conditions. For good planning he requires a system of reminders to ensure that individual operations will not be forgotten or delayed. For long term planning the farm manager requires his field records to be set out in an easily comprehensible form so that he can refer to them when making decisions.

On thinking over these requirements, it appeared that a wall mounted field history chart, on which one could record the work done on each field and any observations made, would be suitable. Provision for forward planning could be made by making the chart backing from soft board, thus enabling coloured map pins to be used to indicate planned operations. The board would have to be large enough to contain the information from all the fields on the farm over the period of an entire season. Because the necessary information would now be on one chart, work planning and control would be improved.

Setting up the field history chart

The first step in setting up the field history chart was to decide on the dimensions required for the soft board backing. It was decided to record the information on a weekly basis and space would be available for 60 weeks to allow for some overlap in the seasons. As the graph paper available was ruled every 25,4 mm the board was made 1670 mm wide to cover 60 weeks at 25,4 mm per week, leaving adequate space to record the field numbers down the left hand side. On each estate farm the height of the board was chosen to allow the entry of all the fields on the board, each field being allocated 25,4 mm.

Ruled graph paper from a roll was then stapled onto the board using a paper stapler. The field numbers were written down the left hand side of the graph paper, and horizontal lines were drawn every 10 spaces to act as a visual aid. The dates were written across the top of the chart in weekly increments using the Sunday date concerned to mark the week end. Vertical lines were drawn to divide the chart into monthly divisions on the same basis as the Mill Group month end dates.

A piece of black string was hung vertically down the board for use as a date marker, indicating the division between the past week and the present week. It was decided that the completed operations would be indicated using a colour code for ease of reference. A pack of different coloured felt tip marker pens and a supply of large headed map pins of different colours were ordered. As the author is partially red-green colour blind the colours used on the chart were chosen with this in mind. As far as possible the coloured map pins used for planning were chosen in the same colours as the felt tip markers used. To improve the usefulness of the chart it was decided to write additional information on the coloured squares which indicated a completed operation, such as the amount and type of fertilizer applied, the herbicide used, and whether cultivations were done by mule or tractor.

It became apparent that provision would have to be made in the chart code for operations which were proceeding during a particular week but which were not completed in that week (e.g. drawn out operations such as harvesting, weeding, planting and cultivating). This was done by marking either a cross or a double horizontal strip in the same colour in the appropriate square. The code devised for the chart is shown in Table 1.

TABLE 1
Coding system for field history chart

Operation	Planned	Proceeding	Completed
Fertilizer application	Red pin	—	Orange square
Herbicide spray . . .	Yellow pin	—	Yellow square
Cultivation—Mule or Tractor	Blue pin	Purple strip	Purple square "M" or "T" written
Hand weeding, or trash management	Green pin	Green strip	Green square
Inspection	White pin	—	Written comments
Leaf sample	Written in pencil	—	Written in ink
Soil sample	Written in pencil	—	Written in ink
Harvest date—Trashed		Blue cross	Blue square
Burnt		Black cross	Black square
Planting		Pink cross	Pink square

Using the chart

Using the chart has been simple in practice. The first step each week is to fill in on the chart those operations carried out the previous week. For example if a field has been fertilized, then the appropriate square indicating the field and the week is coloured orange and over this is written the type and amount of fertilizer applied. If a field was partly weeded during the week then this is indicated by colouring a green strip at the top and bottom of the correct square. When the field is completely weeded this will be shown by colouring the whole square green. Any leaf or soil sampling done is written in on the chart using ink or felt tip pen. If observations were made they are also written in on the chart so as to form a permanent record.

When the recording of the past week's activities is completed, the date marking cord is moved forward one space to separate the work that has been done from the work that remains. Now the farm manager can plan his work. Starting at the top of the chart he looks at the history of the first field to see what

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has been done and when, also what comments have been written on the board. He then checks to see if any pins have been placed on the chart to indicate operations that need to be carried out. If there are no pins on the chart he rechecks the recent history of the field to see if there is any work required on the field. If he is not certain he will place a white pin on the chart to remind himself that the field must be inspected. If he knows what must be done he will place the appropriate pin on the chart indicating what operation is necessary and when. If there are pins on the chart indicating a particular operation then he will decide if the operation is still required on that date and either leave the pin where it is or move it. Following this he will examine the other fields on the chart going through the same process for each field. When he has looked through all the fields he will have indicated on the chart the work that should be done in the coming weeks. The farm manager looks at this programme and allocates his resources to the work. If there is too much for him to do in the coming week then he will move some operations to the next week. During the peak work periods he will examine the work load in the coming weeks also as this is a valuable guide to future problems and gives the manager time to obtain additional men, money, materials or machinery.

Discussion

We have found the field history chart to have the following advantages over the previous system used at Melville:

- (1) there is ready access to field history data;
- (2) planning is simplified as this is done systematically each week. For instance when applying a herbicide like Sencor, it is essential to plan for a hand weeding within 6 weeks of application to remove resistant grasses. This is recorded on the field history chart by placing a green pin on the chart marking the appropriate time for the weeding;
- (3) the chart is an aid to the allocation of resources as the farm manager can see what work is required over the coming weeks and set priorities accordingly;

- (4) it is easier to decide why something went wrong when the field histories and observations are readily to hand;
- (5) when it is necessary to call in outside opinion the expert can assess the situation for himself without having to rely on the farm manager's memory;
- (6) long term planning is facilitated by studying the charts from previous years as they give the broad picture of the farm's operations in an easily digestible form;
- (7) where there are a number of farms forming one estate, the field history charts on each farm make the supervision of the farms much easier for the field manager;
- (8) if anything should happen to the farm manager such as a sudden illness, his replacement is able to see exactly what work was planned on the field history chart and in addition can carry on planning himself;
- (9) it becomes quickly apparent if the work falls behind and the farm manager can take corrective action.

The field history charts are in their third year of use at Melville and have proved very satisfactory as management tools on the farm. Recording the data on the charts is a simple task as it is done on a regular basis once a week and there have been no problems keeping the charts in operation. Preparing the charts takes some time and should be done within a week of harvest commencing for the new season. It is difficult to start the charts in the middle of a season as it takes a surprising amount of time to bring the field histories up to date as was found out when the charts were first introduced at Melville some two months after the start of the 1975 crop. It is felt that the basic system described above is a very valuable tool for today's conditions where timing of operations is often critical.

REFERENCE

1. Thompson, G. D. and Moberly, P. K. (1976). Programme planning: a step towards improved sugarcane production. SASTA Proc 50: 40-49.