

TIME MANAGEMENT - IT PAYS

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FORWARD

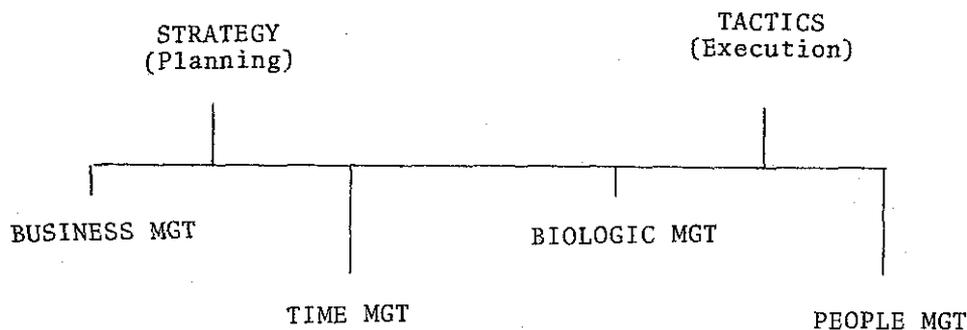
Potato production has rapidly entered an era of industrialization. With ever-increasing scale, rising costs, and closer margins there has developed an incessant need for management.

The concept of management in the production of potatoes has taken many approaches. However, for the most part, the agrarian myth or the family farm ideology has tended to treat production like motherhood; while the real need has been to bring to the field of agricultural production a concept of management by objectives, systems analysis, case methods, and other established, sophisticated business - industrial engineering oriented precepts.

MANAGEMENT IS THE NAME OF THE GAME

The potato industry, more often than not, operates under the stress of uncertainty. This is basically no different than any other non-Government supported free enterprise industry. The operation that has control of all functions of management will always have the edge, regardless of the stress.

ELEMENTS OF MANAGEMENT



The philosophy of management of the Burbidge Seed Co. is, basic, simple, and functional:

The Functions of Management

Strategy (Development of a Plan)

1. Planning - Long term and short term
2. Use of technology
3. Use of sound, tested, business principles.
4. Ability to read trends and change where change is needed.

Tactics (Execution of a Plan)

1. Deals with the now.
2. Adjusts to conditions.
3. Deals with the day-to-day.
4. Accomplishes the details of strategy.

Fields of Management

In our company we consider four fields of management: Business or Financial Management, Biological Management, Time Management, and People Management - many problems are a combination of two or more of these classifications, basically they are all interrelated.

A. Business or Financial Management

1. Capital inputs - Money invested has a cost whether borrowed or not at a rate at least equal to what it would earn in many possible alternatives. A dollar to be returned a year from now at 6% only has a present value of 94¢.
2. Maximize utilization of resources.
3. Cost accounting, cash flow budgeting, enterprise analysis, least cost alternatives.

B. Biological Management

1. Basic job of potato production is to manage plants.
2. Success in biological management will complement other managerial areas (economy of scale possible only if biological management is successful).
3. Failure of biological management can mean failure of business.
4. Potato Stands.
 - a. Yield
 - b. Quality (Market price)
 - c. Cost benefit ratio (15,000 cwt. for one timely adjustment)

C. Time Management

1. Fixed cost a function of time management.
2. Operations cost a function of time management.
3. Time a major element in biological management.
 - a. Time to plant.
 - b. Time to harvest.
 - c. Affects yield.
 - d. Affects quality.
 - e. Affects market price and total profit.
4. Conflict of time management.
 - a. Need to get operations completed in optimum time.

- b. Need to get maximum utilization of equipment.
- 5. The concept of time management in agricultural operations has not kept up with the need for better time utilization.

D. People (or Labor) Management

- 1. Frequently, incompetent, inexperienced, and uninspired labor must be used.
- 2. Leadership, motivation, and development of productive capacity has not come easy.
- 3. Expectation of labor, evaluation of accomplishments, and rewards for competent and productive efforts have received too little attention in the past.
- 4. In many cases labor management difficulties and frustrations have caused uneconomic equipment investments.

More specifically, the ever-increasing cost and inavailability of labor versus the size and cost of potato production equipment have created a number of, little understood, problems within the frame-work of a total plan.

As a tool in the management of all our enterprises, we rely heavily on our computerized cost accounting system. Our objective in using this data is to identify and assign cost and make basic changes where they are needed. Basically, we are always on the lookout for a better way of doing something even if the present method seems adequate.

As our computerized data became more sophisticated we foresaw that we had to increase the use of our basic resources. We saw that investment in large, high cost equipment could be profitable only if utilization was maximized.

Our main business is the production and marketing of certified seed potatoes. Over the years we have had the good fortune of developing a market in nearly every major production area of the nation. Our total sales volume, both what we produce and what we sell for others, has increased to the point that we found it feasible to increase our own production to 1200 acres annually.

Today, I would like to address myself specifically to the management of potato planting.

First off, a few general observations on potato planting.

- 1. The planting operation is extremely important from the standpoint of total yield, quality, and net profit.
- 2. Washington Research has indicated that 81% of the cause of poor stand can be attributed to planter operations.
- 3. Biological management can mean the real difference between profit and loss.
- 4. The value of time management in potato planting is two-fold: Time is very limited when optimum planting conditions exist and therefore equipment must be utilized efficiently. Maximum efficient utilization of equipment will reduce costs and increase profits.

The role of farm equipment has become paramount in the production of potatoes. This role becomes of increasing importance as equipment becomes larger and more costly. Present economic pressure demands that the farm operator use his equipment as efficiently and effectively as possible. The operation analysis concept of a systems approach appears to have considerable merit when planning for maximum equipment utilization.

I have noted that many planting operations leave a lot to be desired from all four factors of management.

1. Business - they simply were not getting a maximum return on their investment.
2. Biological - not getting good uniform stands: decreasing yields, quality, and net profit.
3. Time Management - Very little consideration had been given to this - opportunities and consequences not generally known.
4. Labor (or People) Management - Had no incentive to perform. Not production or goal oriented.

Furthermore - precepts have changed. It is very apparent that larger equipment will not be efficient unless the principles of time management are used. They are not immediately obvious. A minute loss sixty times a day may not be recognized but it can mean an extra two days planting for many operations.

To illustrate, think back to the old two row planter operation. The planter could not do a satisfactory job in excess of three mph. At that speed the planter did not need filling as often, nor did it require as much seed, only about 12 cwt. While a newer six row planter can operate effectively at four mph, at the end of each round the planter requires 36 cwt. of seed. It is significant that the planter is losing .15 A. for every minute of stop time.

In our operation we approached our planting problem by setting up a model. First we took a hard look at our objectives.

1. Soil temperature and conditions are generally optimum for planting about May 5-8, but seldom before. Further, it would be desirable to plant no later than May 26-28 and definitely advantages to complete planting by May 22-25. With allowance for some inclement weather, it seemed possible that we could have 16-18 days to plant our 1200 acres.
2. The certified seed business has many built-in limitations to planting efficiently, namely sanitation and clean-up and variation in spacing. We grow eight varieties and use different seed lots. In addition, the layout of our land requires a lot of moving.
3. Biological management is critical. There is no way for poor stands in the seed business. With higher costs we have to shoot for maximum yields.
4. We saw that it would be definitely advantageous and possible to plant our crop with one six row planter providing we made maximum use of a systems approach to materials handling.

To illustrate efficient time use it appears that a mathematical analysis would simplify the judgmental decisions to be made.

TABLE I
FINANCIAL INPUTS PER HOUR
6 ROW POTATO PLANTER

| | |
|----------------------------------------------------------------------------|-----------------|
| <u>OPERATION COSTS</u> (200 HOURS USE) | \$ 42.00 |
| <u>LAND COSTS</u> 6 ACRES X \$22 PER ACRE ANNUAL | 132.00 |
| <u>SEED COSTS</u> 16 CWT. PER ACRE X \$2.50 PER CWT. X 6 ACRES | 240.00 |
| <u>CHEMICAL COSTS</u> FERTILIZER & SEED TREATMENT @ \$18 ACRE X 6 ACRES | <u>108.00</u> |
| COSTS COMMITTED PER HOURS PLANTING | <u>\$522.00</u> |

We have a total investment of \$522.00 per hour. \$348.00 are seed and fertilizer costs.

TABLE II
ACRES PLANTED PER HOUR

| TRAVEL SPEED (MPH) | THEORETICAL PLANTING RATE (NO LOST TIME) | ALLOW 1 MIN. PER TURN + 3 MIN. FILL | + 5 MIN. FILL | + 7 MIN. FILL | + 10 MIN. FILL |
|--------------------------|------------------------------------------------|-------------------------------------------|------------------|------------------|-------------------|
| 2.5 | 5.8 Acres | 4.8 (83%) | 4.5 (78%) | 4.2 (73%) | 3.8 (66%) |
| 3.0 | 6.7 | 5.4 (80%) | 5.7 (74%) | 4.6 (69%) | 4.1 (62%) |
| 3.5 | 8.1 | 6.2 (77%) | 5.7 (71%) | 5.2 (65%) | 4.8 (59%) |
| 4.0 | 9.2 | 6.9 (75%) | 6.3 (68%) | 5.7 (62%) | 5.2 (56%) |
| 4.5 | 10.4 | 7.6 (73%) | 6.7 (65%) | 6.2 (60%) | 5.5 (53%) |
| 5.0 | 11.5 | 8.1 (70%) | 7.3 (63%) | 6.6 (57%) | 5.8 (50%) |

Note how varying the time required to fill the planter effects the acreage covered - at four mph and seven minutes fill planting capacity is increased more by decreasing fill time two minutes than by increasing the speed to 4-1/2 mph.

Further, note that the difference between five and seven minutes fill time would mean .6 acres per hour or 7.2 acres per twelve hour day. Five versus ten minutes filling time is 1.1 acre per hour or 13.2 acre per 12 hour day, this would be highly significant at the end of planting.

This chart indicates that one could spend a considerable amount for auxiliary equipment for materials handling.

Our seed loader moves to the planter and is poised to load 36 cwt. of freshly cut seed as soon as the planter turns without either tractor or planter operator

leaving their positions. We get 66% utilization of the planter. We can consistently plant at the rate of six acres per hour.

Our planting operation involves eight people including a working foreman. They work 12 hour days with alternating intervals of time off to enable the planter to go constantly. These people pre-plant till, load and haul seed to the field (where it is cut), cut seed, operate equipment, and apply fertilizer. If weather conditions become critical and optimum planting time is short, we have the capability of extending the operation to an 18 or even 24 hours a day.

In a certified seed operation we have a lot of unavoidable stop time such as clean-ups, disinfecting for variety and lot changes, differences in row spacings and down-time.

Last season we kept our labor under 1-1/2 man hours per acre. We planted an average of 70 acres per day and completed our planting in 17 actual days.

Time management as well as biological management is really a matter of people management. We set objectives and goals. We offer incentive for completion within specified days tied to a minimum for quality standards such as 90% stands, accurate spacing, seed piece size, depth control.

We feel that much can be gained by using a systems approach to more effective time management.

CONCLUSIONS

1. Profit is the only reason for producing potatoes - therefore, all factors of management: business, biological, time and people must be sharpened up and focused in on the problem.
2. There are no simple solutions to complex problems. It would appear that tried and tested business and industrial engineering oriented concepts would be the real need for maximizing return in the production of potatoes.
3. Agricultural producers, particularly potato growers, have rapidly increased the size of and investment in equipment, however, they have been slow to adapt any sound time management principles.
4. Effective time management based on a sound, tried systems approach can, and frequently will, mean the difference between profit and loss for the potato producer.

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