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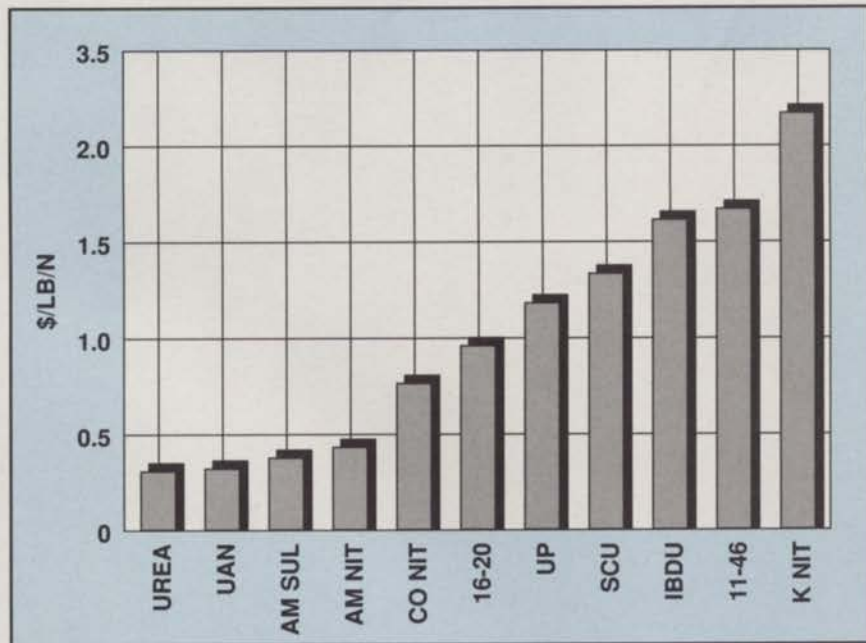
FIGURE 3.

COMPOSITION OF FERTILIZER MATERIALS

MATERIAL	NITROGEN % (N)	PHOSPHORUS % (P2O5)	POTASSIUM \$ (K2O)	LBS. N/TON	\$/TON	\$/LB/N
AMMONIUM SULFATE	21	0	0	420	\$150.00	\$.36
AMMONIUM NITRATE	33.5	0	0	670	\$288.50	\$.43
MONOAMMONIUM PHOSPHATE	11	40	0	220	\$360.00	\$1.64
AMMONIUM PHOSPHATE- SULFATE	16	20	0	320	\$299.60	\$.94
CALCIUM NITRATE	15	0	0	300	\$224.25	\$.75
UREA	45	0	0	900	\$260.00	\$.29
UREA FORMALDEHYDE	30	0	0	760	\$890.00	\$1.17
ISOBUTYLIDENE DIUREA (IBDU)	31	0	0	620	\$1000.00	\$1.61
UREA AMMONIUM NITRATE SOLUTION	32	0	0	640	\$190.00	\$.30
POTASSIUM NITRATE	13	0	45	260	\$560.00	\$2.15
SINGLE SUPER PHOSPHATE	0	20	0	0	\$253.00	
TRIPLE SUPER PHOSPHATE	0	45	0	0	\$349.00	
SULFUR COATED UREA	35	0	0	700	\$930.00	\$1.33
WHALE GUANO	9.5	6.5	2	190		

FIGURE 4.

COST OF NITROGEN IN FERTILIZER



Fertilizers are produced with a wide range of nutrient content. The nutrient analysis of a fertilizer is always shown as three numbers on a label representing the primary nutrients, nitrogen (N), phosphorus (P) and potassium (K), and always in that order. The numbers represent the percent by weight. Any other nutrients in the fertilizer will be shown elsewhere on the label.

Remembering analysis

A fertilizer analysis of 10-5-8 means

that 10 percent of the material's weight is N, 5 percent is P and 8 percent is K. If the fertilizer is in a 50 lb. bag, 5 lbs. is N (50 lbs. x 10% N = 5 lbs. N), 2.5 lbs. is P (50 lbs. x 5% P = 2.5 lbs. P) and 4 lbs. is K (50 lbs. x 8% K = 4 lbs. K).

In Fig. 3, the composition of several commonly-used fertilizer materials is shown with the amount of nutrients present. The pounds of N contained in a ton of fertilizer is shown along with the cost of a ton of the fertilizer. In the last column, the cost of N per pound

has been computed.

Ammonium sulfate (21-0-0) is listed at \$150 per ton and urea (45-0-0) is \$260.

Even though a ton of ammonium sulfate is less expensive than a ton of urea, the ammonium sulfate N is 36 cents per pound and the urea N is 29 cents. There is over twice as much N in urea (45%) than in the ammonium sulfate (21%).

A turf manager who has 50,000 sq. ft. of turf wants to apply one pound of N per 1,000 sq. ft. So it will take 237.45 lbs. of ammonium sulfate at a cost of \$85.50.

$$\text{lbs. fert./1000 sq. ft.} = \frac{1.00 \text{ lb. N/1000 sq. ft.}}{21 \text{ lb. n/lb. fert.}} = 4.75$$

$$\text{lbs. fert./50,000 sq. ft.} = 50 \times 4.75 = 237.5$$

$$50,000 \text{ sq. ft.} = 237.5 \times \$0.36 = \$85.50$$

It will take 110 lbs. of urea to put one pound per 1,000 sq. ft. on 50,000 sq. ft. of turf at a cost of \$31.90.

$$\text{lbs. fert./1000 sq. ft.} = \frac{1.00 \text{ lb. N/1000 sq. ft.}}{45 \text{ lb. N/lb. fert.}} = 2.2$$

$$\text{lbs. fert./50,000 sq. ft.} = 50 \times 2.2 = 110$$

$$50,000 \text{ sq. ft.} = 110 \times \$0.29 = \$31.90$$

In this example, even though the cost of urea is considerably higher per ton than ammonium sulfate, it is significantly less expensive to use. The turf manager is looking at \$85.50 to fertilize the area with ammonium sulfate or \$31.90 to use urea.

In Fig. 4, the cost of nitrogen per pound is shown graphically for several fertilizers as a comparison. Soluble fertilizers are the least expensive. Slow-release materials and those containing other nutrients are at the other end of the scale.

Fertilizer cost is an important factor in the buying decision. Unfortunately, getting the right fertilizer is not always as simple as using the cheapest N source.

Ammonium sulfate provides sulfur as well as nitrogen. IBDU is a slow-release nitrogen source, which means a steady supply of N to the plants and few applications. Urea has a high N analysis so the turf manager handles less material. Monoammonium phosphate has available phosphorus. All of these are important considerations in choosing a fertilizer material.

Break-even analysis

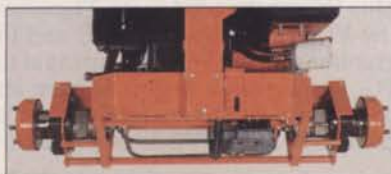
In any business enterprise, at some point in the income and cost relationship there is no profit or loss. That is the point at which the operation will break even (BE). Obviously, one of the goals of a business is to operate at a profit, which is above the BE.

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Circle No. 153 on Reader Inquiry Card

(Public organizations target break-even and do not wish to perform above that.)

The relationship of the BE to costs and fee revenue (sales) for a turf facility is shown graphically in Fig. 5. In this example, it is assumed that the information represents one year. Variable costs (VC) are the costs that are the most closely related to fee revenue.

Certain costs depend on the level of activity at that facility. Activities such as lawns serviced, rounds of play, number of games played, or sod sold affect supplies, labor hours, fuel and deliveries. These are variable costs.

When the activity level increases, the fee revenue increases and the VC

increases to meet the demand. When fee revenues go down, the VC will also go down, often a major management challenge.

Fixed costs (FC) are fixed for more than one year. They do not change regardless of the fee revenue or level of activity. FC includes management salaries, office rent, mortgage payments and equipment installations.

Graphing profit

The FC are shown as a straight line in the graph since they do not change. FC plus VC are the total costs. Therefore, the VC are on top of the FC and the graph shows the VC line starting at the FC. Fee revenue begins at zero and goes up since it has to total costs. The point where the VC line crosses the

fee revenue line is the BE. Notice how the two lines rapidly spread after the BE. This shows how quickly profits (revenue surplus) can build if VC are kept under control. If VC are allowed to increase, the BE will slide higher on the fee revenue curve.

The BE is useful for much more than determining the organization's profitability. It can be used to establish the actual cost of expenditures. The BE can be used to determine the actual cost to the organization of any supply purchase, new employee hire or equipment purchase.

In Fig. 6, the BE shown graphically in Fig. 5 is computed. The example uses the BE to cost out the purchase of a load of fertilizer.

The VC and FC are computed as percent of fee revenue by dividing each by the fee revenue dollars (shown as thousands).

FIGURE 5.

BREAK EVEN ANALYSIS TURF FACILITY

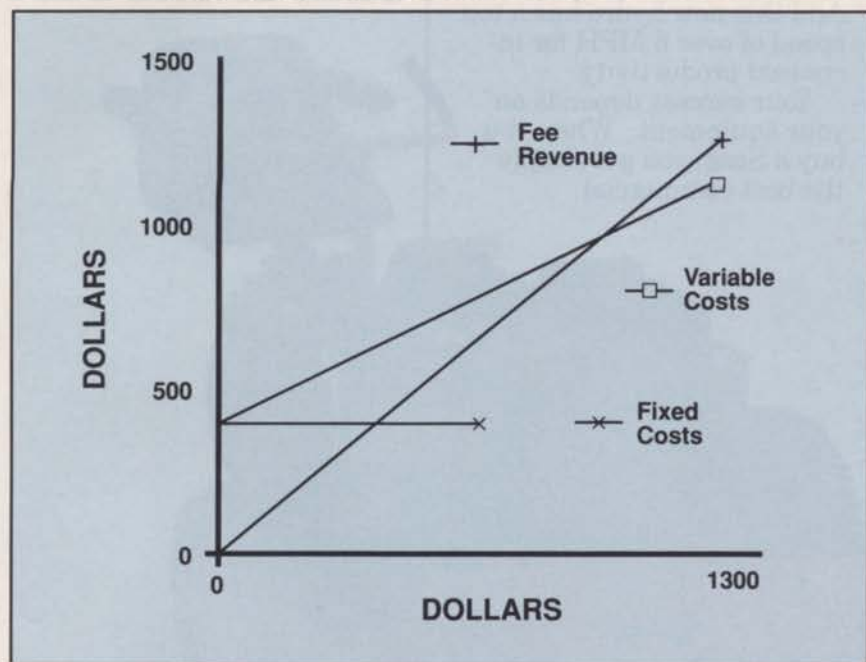


FIGURE 6.

BREAK EVEN ANALYSIS TURF FACILITY

	DOLLARS (1000) Of Fee Revenue	AS%
FEE REVENUE	1300	
VARIABLE COSTS	764.5	58.81
FIXED COSTS	415.5	31.96
MARGINAL RATIO*		41.19
BREAK EVEN (FC/MR)	1008.7	
* MARGINAL RATIO = % FEES AVAILABLE TO COVER FIXED COSTS AND PROFIT AFTER DEDUCTING % REQUIRED FOR VARIABLE COSTS (MR = 100% - VC%)		
TRUCK LOAD FERTILIZER @ \$200/TON		\$5000.00
FEES NEEDED TO BUY FERT. (COST/MR)		\$12,138.87

$$BC\% = \frac{VC}{\text{Fee Revenue}} = \frac{764.5}{1300} = 58.81\%$$

$$FC\% = \frac{FC}{\text{Fee Revenue}} = \frac{415.5}{1300} = 31.96\%$$

The marginal ratio (MR) is a ratio of fee revenue to variable costs. It shows what is needed to cover the fixed costs and profit (surplus). The MR is calculated by subtracting the VC as percentage of fee revenue from 100 percent, which represents all sales.

$$MR = 100\% - VC\% = 100 - 58.81 = 41.19$$

The BE is calculated by dividing the FC by the MR.

$$BE = \frac{FC}{MR} = \frac{415.5}{.4119} = 1008.7$$

This facility would have to make \$1,008,700 in fee revenue to break even. Fee revenue over that level begins to accumulate profit.

A load of fertilizer costs \$5,000. By dividing the fertilizer cost by the MR the manager can determine how many dollars in fees must be made to pay for the fertilizer.

$$\text{Fees Needed} = \frac{\$5,000}{.4119} = \$12,138.87$$

It would take more than \$12,000 in fees to pay for a \$5,000 load of fertilizer. The true cost of expenditures can get to be quite high if variable costs are not controlled.

The actual cost of fertilizer is often inexpensive when compared to the benefits it can provide an operation.



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USING DIRECT MAIL AS A MARKETING TOOL

A direct mailer may be one of the best marketing tools available to attract new customers in the landscape market.

by Ed Wandtke

Direct mail is often overlooked as a marketing opportunity, except by the most progressive of today's landscaping companies.

Many landscaping companies are sloppy in the way they use direct mail. They don't understand how to put it to work or the costs involved in building a program.

For those considering a direct mail program, it's important to note that your most likely new customer is probably living next door to one of your past or present customers. Therefore, a successful direct mail campaign will use these clients to help sell services.

Other factors need to be taken into consideration in order for a direct mail campaign to be a success in the green industry. For example:

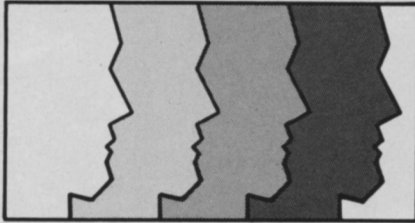
Know your market. The direct mailer as used in landscaping differs greatly from one that might be used in lawn care. You probably don't have as many customers as a lawn care company, so you have the opportunity to analyze their situation more closely.

Get some idea of the income level and home value of the people you want to service. Whether you are in commercial or residential work, you have to be able to target those people you want to reach. This will help lower the cost of a direct mail campaign while increasing the possibility that it will be successful.

Find a market segment that offers the best chance of success. Once you know your market, concentrate your efforts there. It must be a geographical segmentation, but often it's a demographic one too. In demographics we look at age, home value and income as major variables in defining our "perfect" customer.

To find demographic information such as home value, age and income, work with a mailing company. Both local and national mailing companies have this type of information at a relatively low cost. Use it to examine addresses, income and home value in different parts of your locale. You may

MANAGEMENT



IN BUSINESS

be surprised to find that there are many people nearby who fit your customer profile.

Do a current customer profile. In order to locate your market segment, find out who has bought your services in the past. Potential clients who fit their profile are likely to be the ones who will respond positively to your direct mailing.

Don't limit yourself to geographical segmentation.

Strut your stuff. For artwork, use either your own renderings, blueprints or drawings, or pictures of some of your current landscaping jobs.

More than 80 percent of the buying decision is made through visual means. If you have a strong visual, use it. If it explains to the consumers what they will receive if they retain you, so much the better.

Don't be wordy. Most brochures contain too much copy. Your product is primarily visual, so show it to the customer.

Make an offer to the consumer. If you can't make an offer, there is no reason for the consumer to continue to look at your brochure. The offer can be to make the area around the home more livable and enjoyable.

Don't mail to too many people. Should you find a responsive audience, you need to be able to get to them fairly quickly for the first contact. The consumer will wait for your service after they have made the buy-

ing decision, but they don't want to wait for the first contact. If you mail too many brochures, you may find you can't service the leads quickly enough.

Be prepared to do multiple mailings. Multiple mailings are often necessary. If you send out your brochure once, you may not get a strong response. But by sending the same piece out again, you'll do little more than waste your money.

You may mail only a few hundred brochures in order to obtain enough business to keep you busy and growing. Because you aren't sending out thousands, as is done in lawn care, you should make sure that the brochure's quality is very high.

Remember that the key to successful direct mailing is to identify those people who are the most likely buyers. By combining a target market with a professional brochure, you can attract customers who would otherwise be unapproachable.

The landscape industry offers many opportunities for direct mailing. Because so little of it is done, the professional company using direct mail successfully is formidable competition in this young marketplace.

By properly targeting your audience with a high quality mailer, you'll be professional and profitable. **LM**



Ed Wandtke is a senior consultant with All-Green Management Associates, in Columbus, Ohio. He focuses on operations and financial questions.



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should be of interest to your readers, but I found many errors in the article.

In reference to Devine, I would add that the University of Florida program that developed the fungus *Phytophthora palmivora* for use as a mycoherbicide against milkweed vine on citrus trees was so successful that the market for Devine declined because the fungus remained active in the soil. An example of a

in the soil. An example of a more widely used mycoherbicide is the Upjohn product Collego (the fungus *Collectotrichum gloeosporioides* f. sp. *aeschynomene* developed at the University of Arkansas) which is used to control northern jointvetch in rice and soybeans.

**Gordon E. Holcomb,
Ph.D.**
Louisiana State Univ.

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