Editor's Note: Fixed costs in the production of sod are becoming more important as the margin of profit decreases. Dr. John R, Hall, assistant professor of agronomy and extension turf specialist at the University of Maryland, brings these fixed costs into better perspective in his presentation of the "DIRTI" 5. By knowing the pitfalls of business, sod producers will have a better opportunity to maximize profits.

I^T has always been a source of amazement to observe how the cost of living continues to rise and yet the price of harvested sod remains stagnant. In the early 1950's bread was at least one-third today's cost and sod was almost as cheap as it is today.

How has the producer been able to maintain this low cost in the presence of increasing pressure for higher quality sod? Volume sales have, in some cases, created a margin of profit sufficient for returns to land, labor, capital and management. Agronomic and engineering advances have decreased production time and increased production efficiency to the point where sod production has remained a profitable venture in spite of narrow profit margins.

Agronomic research will continue to investigate management factors and chemicals that will decrease production time and increase sod quality in an attempt to increase profit margins.

What can economic research do for your profit margins? A strong understanding of economic principles is as important to successful sod production as your understanding of agronomic principles. A recent economic study conducted by Fred T. Arnold and Billy V. Lessley has provided the sod industry with much needed information on the economic structure, costs and returns of sod production¹. This bulletin entitled The Commercial Turfgrass Industry in Maryland: Structure, Costs and Returns can be obtained from the Department of Agriculture Resource Economics, College Park, Maryland 20740. (Also see WTT Feb. 1973 p44.)

At a recent Sod Cost Analysis Workshop, Dr. Billy V. Lessley exposed sod producers in attendance to the frightening prospect that their businesses might be dying a slow and invisible death hastened by failure to include "The DIRTI 5" in the cost of sod production.

The two basic types of cost involved in sod production are variable and fixed. Variable costs include those that are a function of output.



If sod production ceases, variable costs cease. These types of cost include labor, seed, fertilizer, lime, gas, oil etc.

The silent and deadly costs that will put many less knowledgeable sod producers out of business are the fixed costs that are incurred whether sod production is occurring or not. These costs are a function of time and include "The DIRTI 5," Depreciation, Interest, Repairs, Taxes and Insurance.

Depreciation is a decrease in the value of a piece of property through wear or aging. It is an annual cost of sod production that should be calculated and included in the selling price. Mathematically it is:

Annual Purchase price — Salvage Value Depreciation = ______ Cost Length of Life

A \$1500 sod cutter that will last three years and be salvageable for \$300 has an annual depreciation cost of \$400. Average total annual depreciation costs in Maryland varied from \$9.62 to \$22.14 per acre in 1968. This represented from 6.91% to 15.04% of the total cost of sod production.

The annual depreciation cost should be calculated for every per-

manent structure and piece of machinery and equipment involved in sod production.

Total depreciation costs should be included in calculations of sod production costs.

Interest is generally considered to be money paid for the use of money. In the case of sod production it must also be thought of as money that you could be making with money that you have tied up in the business of sod production. The cost of tying up your resources in sod production is the value of these resources in their best alternative use. This is sometimes called alternate investment opportunity. The money tied up could be making at least seven or eight percent interest if it were invested. This lost investment opportunity is a cost of sod production and is computed:

Average Beginning Inventory

 $\frac{\text{Alternate}}{\text{Investment}} = \frac{+ \text{ Salvage Value}}{2} \left(\begin{array}{c} \% \text{ Interest} \\ \text{achievable} \end{array} \right)$

The more obvious interest cost is that which your business accrues from borrowed money. Alternate investment opportunity and standard (continued on page 62)

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THE "DIRTI" 5 (from page 58)

interest should be included in your annual cost of sod production.

Repairs are a highly variable and unpredictable cost factor in sod production. They will fluctuate with the type of ground under production, intensity of machine use, preventative maintenance program and other factors. Repair costs for general farm equipment are considered to be in the range of five percent of the purchase cost of the equipment.

In sod production, where new production and harvesting equipment is being designed each year, repairs are commonly much higher than five percent of the purchase cost. All sod producers should be including cost of repairs to equipment and permanent structures as a cost of sod production.

The 1968 Maryland survey indicates approximately \$8.46 was spent per acre per year on repairs.

If you are producing sod on land that you own you are confronted annually with real estate taxes. If working on rented land there is also this cost to consider. In Maryland the average real estate tax rate is \$2.55 per \$100 assessed value is set at 60% of current market value. Current figures indicate that the average per acre cost of real estate taxes in Maryland on sod producing land ranges from \$4.00 to \$4.50 per year.

Insurance on permanent structures, machinery and equipment are a fixed cost that is strictly a function of time. Surveys completed in 1968 indicate that the average cost for insurance in the state of Maryland was \$2.36 per acre per year. This amounts to about 1.74 percent of the total cost of sod production. It may seem minimal but it is a cost that should be included.

Data from the Arnold and Lessley survey of 1968 indicates that "The DIRTI 5" should be accounting for approximately 27% of the average cost of sod production. These subtle economic factors could be slowly taking a sod producer out of business. They work on profits slowly but ruthlessly. In cases where "The DIRTI 5" are not being included in the cost of sod production, some of the money being lived on and called profit is partially money that should be paying for the DIRTI 5. A sod producer can only live on "The DIRTI 5" so long, and then these hidden costs eventually run him out of business. They must be included in the cost of sod production, otherwise it will come out of your pocket sometime in the future. \Box



Dr. Frederick B. Ledeboer Joins Loft's Pedigreed Seed

Lofts Pedigreed Seed, Inc., Bound Brook New Jersey, has announced that Dr. Frederick B. Ledeboer will head the firm's new department of agronomy and research.

Dr. Ledeboer becomes a Vice President, with responsibilities for proprietary turfgrasses and researchdevelopment activities with which the Loft organization has become increasingly concerned. Dr. Ledeboer states, "This is a challenging opportunity for me. Meaningful technical programs in the rapidly expanding turfgrass field have special value these days because of their ecological impact and the chance to improve the urban environment." He will have offices in Bound Brook, New Jersey, but will travel widely both domestically and internationally supervising research that involves cultivar production in the Pacific Northwest.

International Harvester Releases New Literature

Just released by International Harvester Company is four-page brochure describing International landscaping equipment. Included are specifications and information on scarifiers-scrapers, blades, and box scrapers.

Copies of brochure, AD-31348-B, are available from your local International industrial equipment dealer or by writing to Advertising Department, International Harvester Company, 401 North Michigan Avenue, Chicago, Illinois 60611.