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Thomas C. Bridges

University of Kentucky, tom.bridges2@uky.edu

Larry G. Wells

University of Kentucky, larry.wells@uky.edu

George A. Duncan

University of Kentucky, gduncan@uky.edu

John N. Walker

University of Kentucky

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Economic Comparison of Alternative Burley Tobacco Harvesting Practices by Computer

T. C. Bridges, L. G. Wells, G. A. Duncan, J. N. Walker
MEMBER MEMBER MEMBER FELLOW
ASAE ASAE ASAE ASAE

ABSTRACT

THE computer model CATCH (Computer Analysis of Tobacco Cutting and Housing) was developed to provide the individual tobacco producer with management information concerning alternative methods of harvesting burley tobacco. CATCH utilizes specific producer inputs to analyze 24 alternative burley production systems and presents up to four economic rankings containing costs, equipment and labor for each system. The economic rankings aid the producer in decision making with regard to his own operation.

INTRODUCTION

Agricultural operations and practices have been the subject of many computer models and simulations. Holtman et al. (1970) presented a corn harvesting simulator and Morey et al. (1971) used simulation techniques to analyze net profit of a corn harvesting and handling system during a particular weather year. Bridges (1979) developed a design simulation oriented toward the individual producer that examines corn harvesting systems and compares them as to investment and annual cost. Further, Loewer et al. (1977) advanced a model which assessed alternative beef production strategies for the individual farm with land, energy and capital as constraints.

Until recently, burley tobacco was harvested by conventional methods which required little machine input and a substantial amount of labor. With the development of alternative harvesting practices and the reduction of the potential labor force for conventional methods, the burley producer is now faced with many management decisions. What size labor force will be needed each day and how much cash outlay will be required at harvest time? At what point does a harvester become economically feasible if the cost of labor continues to increase? Consideration must also be given to declining labor resources, the amount of investment capital the producer is willing to spend and the type of curing facility desired.

To incorporate the foregoing considerations and to provide the individual producer with management infor-

mation, the computer model CATCH (Computer Analysis of Tobacco Cutting and Housing) was developed. The purpose of this report is to provide a description of the model capabilities and the management information it provides.

PROGRAM CAPABILITIES

CATCH performs the following functions:

- 1 Examines and designs alternative burley tobacco cutting and housing systems which meet the requirements imposed by the individual producer.
- 2 Ranks the costs of the feasible systems considered.
- 3 Presents the equipment and labor required by each feasible system.

SYSTEM DESCRIPTION AND FLOW NETWORK

CATCH examines 24 alternative methods of cutting and housing burley tobacco, as shown in Fig. 1. These include two types of cutting methods: manual and use of harvesting aid (Yoder, 1978); five possible transportation methods: portable curing frames, slant-stick wagon, flatbed wagon, flatbed truck and a 4-wheel rail wagon; and six possible curing facilities: pole-type barn for curing frames, modified 2 and 3-tier barns, 2-tier forced-air barn, 3-tier barn and a conventional 4 to 6-tier barn.

The beginning point in Fig. 1 is defined as the point when the producer is ready to start his tobacco harvest, while the finish point is designated as the time at which the tobacco is placed in the curing facility. The program calculates a harvest rate from producer inputs. This is utilized to determine the equipment and man-hours of labor required for each system, with the capacity of each curing facility based on the total crop production. Labor requirements (in man-hours) were determined by work and loading rates reported by Wells and Miyake (1977) with no restrictions upon available labor. The number of transportation units was calculated using a procedure advanced by Hunt (1973) which always determines enough hauling vehicles to sustain the required harvest rate. Each system CATCH designs is a feasible method and an acceptable practice for harvesting burley tobacco.

PROGRAM INPUTS

CATCH was designed to be a producer-oriented model and provide management information for the individual tobacco farmer. To accomplish this objective, input information was restricted to that which the producer could readily supply. Input parameters that pertain to a particular farm include the total hectares (acres) of production, the crop yield in kilograms (pounds) of tobacco produced per hectare (acre), the length of the working day in hours, the desired number of harvest days and an average transport distance from the field to curing facili-

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The authors are: T. C. BRIDGES, Research Specialist, L. G. WELLS, Associate Professor, G. A. DUNCAN, Extension Agricultural Engineer, and J. N. WALKER, Professor and Chairman, Agricultural Engineering Dept., College of Agriculture, University of Kentucky, Lexington.

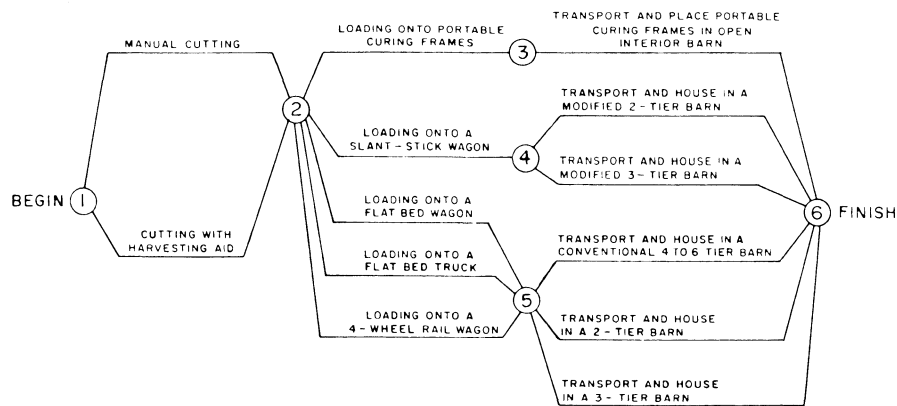


FIG. 1 Burley tobacco harvesting network described by CATCH.

ty in kilometers (miles). CATCH utilizes the total crop production and the number of harvest days to calculate an average daily harvest rate for the design of each system.

Other input parameters include the local cost of gasoline and labor and those of a harvesting aid. A harvesting aid is included in the analysis by specifying the initial cost, the harvest rate and the number of these aids available. If the producer does not have access to a harvesting aid, the analysis will be completed using the above parameters determined by Yoder (1978). One other parameter that may also be an input to the model is the capacity and type of existing curing facilities. The significance of this parameter and its analysis will be discussed later.

ECONOMIC CONSIDERATIONS

CATCH designs each alternative system based on the design harvest rate and compares these systems with respect to investment, annual and operating costs.

Investment costs are defined as the prices paid by the producer for any equipment required by a system. Tractor and truck costs are based on a representative manufacturer's price list, while the costs of other transport vehicles and curing facilities were obtained from Duncan (1978). The cost of curing facilities do include construction costs.

The fixed cost of an item is represented by the sum of the yearly depreciation for the item, the interest on the investment and a charge for taxes, insurance and housing. A value was obtained that expresses the yearly fixed cost as a percentage of the item's list price. The model stores these percentages for all equipment and applies them whenever a fixed cost is desired. All equipment percentages are based on a straight-line method of depreciation, a ten percent interest rate and a two percent charge for taxes, insurance and housing.

The annual cost of a system includes the fixed cost of equipment as well as the operating cost and labor charge associated with each practice. Operating costs are generally divided into an energy charge plus a maintenance or repair charge for equipment. The labor charge is calculated based upon the number of man-hours required to perform the various practices and the hourly wage rate specified by the producer.

One other cost that is computed by the program is denoted as cash cost. Burley producers are often required to have available large sums of cash at harvest time due to the high labor intensity of the harvesting operations. This cost, which is calculated by CATCH, in-

cludes not only the money necessary for the labor, but also that required for fuel use and equipment repairs. This value is included in the annual cost of each system and may be an important consideration in the system selection for a producer's individual operation.

PROGRAM INFORMATION

The program begins examination of the harvesting network by determination of the daily man-hours of labor required for the two types of cutting methods (Fig. 1). This value is based on a manual cutting rate of 0.02 ha/man-h (Wells and Miyake, 1977) and the daily harvest rate specified by the producer. In the case of the harvesting aid(s), this calculation is performed only if it is necessary to supplement the harvesting aid(s) with additional men to meet the desired harvest rate.

CATCH deviates from the flow network in that following the labor analysis for cutting the tobacco, the program begins determination of the capacity of a particular type curing facility. This capacity is calculated in barn bents or sections, and is determined by the capacity of these sections (Duncan, 1978) and the total crop production. Once the required number of bents is known, the investment and annual cost of the curing facility (Duncan, 1978) is then calculated along with man-hours of labor necessary to house or fill this type barn. The daily man-hours of labor for a particular facility are dictated by the fill rate of the barn crew, the number of men/crew (Wells and Miyake, 1977) and the specified harvest rate. If the rate of the barn crew is such that it doesn't meet the harvest rate over the daily harvest time, then the crew size is incremented by one until this requirement is met. CATCH determines and keeps account of the daily man-hours of labor and the required number of barn crews as well as the costs associated with each type of curing facility.

After analyzing a particular type curing facility, the program cycles through the alternative transportation methods to determine the number of hauling units needed to sustain the harvest rate. The number of hauling vehicles is a function of the time required to load the vehicle, the total time for field and road travel, any waste time that may be lost positioning wagons and opening gates, etc. The unloading time of the vehicle was based on the specified harvest rate and the work-rate (Wells and Miyake, 1977) for the particular type transportation unit. The daily man-hours for transportation were based on an average travel speed of 4.8 km/h (3 mph), the transport distance input by the producer and the number

TABLE 1. INPUT PARAMETERS TO CATCH

Total production = 4.86 ha (12 ac)	Harvest season = 6 days
Harvest day = 10 h	Transport distance = 1.21 km (0.75 mi)
Yield = 2800 kg/ha (2500 lb/ac)	Total yield = 13608 kg (30,000 lb)
Labor = \$6.00/h	Fuel = \$0.185/L (\$0.70/gal)
Harvesting aid parameters	
Initial cost = \$3000.00	Number of aids = 1
Harvest rate = 0.51 ha/day (1.25 ac/day)	Men per aid = 1

of loads/day. CATCH determines a minimum number of transportation units for each hauling method excluding curing frames. The program calculates the number of frames required for the entire crop, assumes that they need only be loaded at the harvest rate, and allows the producer to transport them to storage at his own convenience.

As each transportation method is analyzed, CATCH determines the investment and annual cost of each method. The investment cost of each method includes the cost of the hauling vehicles as well as that of any needed tractors. The annual cost of each method includes the operating costs and the fixed cost of the equipment. However, only a portion of the fixed cost of tractors, trucks and flat bed wagons is assigned to the annual cost for the tobacco operation. This portion is defined as twice the number of harvest days divided by 365, based on the assumption that one out of every two days will be a good harvest day.

Once the analysis of the 24 systems is completed, CATCH totals the costs and equipment for each. The program also determines the number of men required per day for each system based on the daily man-hours for that system and the number of hours/work day specified by the producer. The amount of capital for each system due to labor is calculated using the producer's wage rate and the total man-hours required to harvest the crop with that system. This cost as well as the fixed and operating cost of the equipment is included in the annual cost of a particular system.

PROGRAM USE

CATCH determines the equipment and labor required for each system and presents up to 4 economic rankings, as will be shown later. These economic rankings (used in

TABLE 2. BURLEY TOBACCO HARVESTING SYSTEMS DESCRIBED BY CATCH

Systems descriptions	
1.	Manual cutting, slant stick wagon, modified 2-tier barn
2.	Manual cutting, slant stick wagon, modified 3-tier barn
3.	Manual cutting, flat bed wagon, 2-tier forced air barn
4.	Manual cutting, flat bed truck, 2-tier forced air barn
5.	Manual cutting, 4-wheel rail wagon, 2-tier forced air barn
6.	Manual cutting, flat bed wagon, 3-tier barn
7.	Manual cutting, flat bed truck, 3-tier barn
8.	Manual cutting, 4-wheel rail wagon, 3 tier barn
9.	Manual cutting, flat bed wagon, conventional 4 to 6 tier barn
10.	Manual cutting, flat bed truck, conventional 4 to 6 tier barn
11.	Manual cutting, 4-wheel rail wagon, conventional 4 to 6 tier barn
12.	Manual cutting, curing frames, open barn
13.	Harvester (plus manual if needed), slant stick wagon, modified 2-tier barn
14.	Harvester (plus manual if needed), slant stick wagon, modified 3-tier barn
15.	Harvester (plus manual if needed), flat bed wagon, 2-tier forced air barn
16.	Harvester (plus manual if needed), flat bed truck, 2-tier forced air barn
17.	Harvester (plus manual if needed), 4-wheel rail wagon, 2-tier forced air barn
18.	Harvester (plus manual if needed), flat bed wagon, 3-tier barn
19.	Harvester (plus manual if needed), flat bed truck, 3-tier barn
20.	Harvester (plus manual if needed), 4-wheel rail wagon, 3-tier barn
21.	Harvester (plus manual if needed), flat bed wagon, conventional 4 to 6-tier barn
22.	Harvester (plus manual if needed), flat bed truck, conventional 4 to 6 tier barn
23.	Harvester (plus manual if needed), 4-wheel rail wagon, conventional 4 to 6-tier barn
24.	Harvester (plus manual if needed), curing frames, open barn

illustrating the model) were determined from the input parameters shown in Table 1. The information presented in these rankings corresponds to these input parameters only and is not applicable to all burley harvesting situations.

Table 2 presents a list of the systems described by CATCH. The systems are identified by number and include the type of cutting method, the type of transport vehicle and the type of curing facility. This figure is used for quick reference and system identification, as will be shown in the economic rankings.

The first ranking determined by CATCH is the cash cost ranking of new systems (Table 3). The systems are ranked by cash cost from the least to the most expensive. The items that appear in the ranking are as follows: the system number which identifies the system (from Table 2); the investment cost, the annual cost and annual cost per unit of production, the labor required per day (includes barn crew), the required number of transport vehicles (except for systems 12 and 24 where this is the required number of curing frames), the size of the curing facility in barn bents, the required size of the barn crew and a percent utilization for the barn crew. The term 'new system' means that the investment cost includes the purchase price of all new equipment for each system.

The second ranking determined by CATCH (Table 4)

TABLE 3. CASH COST RANKING OF NEW SYSTEMS

System no.	Invest. cost, \$	Annual cost, \$	Ann. cost, cents/lb	Cash cost, \$	Cash cost, cents/lb	Labor, men/day	Transport vehicles	Barn size, bents	Barn crew, men	Barn crew utiliz., %
13	109200.0	11692.0	39.0	2588.0	8.6	7	4	33	2	79.4
17	108800.0	11727.0	39.1	2673.0	8.9	7	4	33	2	100.0
16	107600.0	11413.0	38.0	2722.0	9.1	8	4	33	2	100.0
14	90600.0	9914.0	33.0	2874.0	9.6	8	4	27	4	59.5
15	108800.0	11674.0	38.9	3009.0	10.0	8	4	33	2	100.0
20	90200.0	10094.0	33.6	3104.0	10.3	9	4	27	6	53.3
1	106200.0	11775.0	39.3	3139.0	10.5	9	4	33	2	79.4
19	89000.0	9779.0	32.6	3153.0	10.5	9	4	27	6	53.3
23	76000.0	9643.0	32.1	3173.0	10.6	9	3	23	4	85.2
5	105800.0	11810.0	39.4	3224.0	10.7	9	4	33	2	100.0
24	82010.0	11483.0	38.3	3229.0	10.8	6	486	36	1	100.0
22	85600.0	9478.0	31.6	3229.0	10.8	9	4	23	4	85.2
4	104600.0	11496.0	38.3	3273.0	10.9	9	4	33	2	100.0
2	87600.0	9997.0	33.3	3425.0	11.4	10	4	27	4	59.5
18	90200.0	10040.0	33.5	3440.0	11.5	9	4	27	6	53.3
21	86800.0	9739.0	32.5	3517.0	11.7	10	4	23	4	85.2
3	105800.0	11757.0	39.2	3560.0	11.9	10	4	33	2	100.0
8	87200.0	10177.0	33.9	3655.0	12.2	10	4	27	6	53.3
7	86000.0	9862.0	32.9	3704.0	12.3	11	4	27	6	53.3
11	73000.0	9726.0	32.4	3724.0	12.4	10	3	23	4	85.2
12	79010.0	11565.0	38.6	3780.0	12.6	7	486	36	1	100.0
10	82600.0	9561.0	31.9	3780.0	12.6	11	4	23	4	85.2
6	87200.0	10123.0	33.7	3991.0	13.3	11	4	27	6	53.3
9	83800.0	9822.0	32.7	4068.0	13.6	11	4	23	4	85.2

TABLE 4. ANNUAL COST RANKING OF NEW SYSTEMS

System no.	Invest. cost, \$	Annual cost, \$	Ann. cost, cents/lb	Cash cost, \$	Cash cost, cents/lb	Labor, men/day	Transport vehicles	Barn size, bents	Barn crew, men	Barn crew utiliz, %
22	85600.0	9478.0	31.6	3229.0	10.8	9	4	23	4	85.2
10	82600.0	9561.0	31.9	3780.0	12.6	11	4	23	4	85.2
23	76000.0	9643.0	32.1	3173.0	10.6	9	3	23	4	85.2
11	73000.0	9726.0	32.4	3724.0	12.4	10	3	23	4	85.2
21	86800.0	9739.0	32.5	3517.0	11.7	10	4	23	4	85.2
19	89000.0	9779.0	32.6	3153.0	10.5	9	4	27	6	53.3
9	83800.0	9822.0	32.7	4068.0	13.6	11	4	23	4	85.2
7	86000.0	9862.0	32.9	3704.0	12.3	11	4	27	6	53.3
14	90600.0	9914.0	33.0	2874.0	9.6	8	4	27	4	59.5
2	87600.0	9997.0	33.3	3425.0	11.4	10	4	27	4	59.5
18	90200.0	10040.0	33.5	3440.0	11.5	9	4	27	6	53.3
20	90200.0	10094.0	33.6	3104.0	10.3	9	4	27	6	53.3
6	87200.0	10123.0	33.7	3991.0	13.3	11	4	27	6	53.3
8	87200.0	10177.0	33.9	3655.0	12.2	10	4	27	6	53.3
16	107600.0	11413.0	38.0	2722.0	9.1	8	4	33	2	100.0
24	82010.0	11483.0	38.3	3229.0	10.8	6	486	36	1	100.0
4	104600.0	11496.0	38.3	3273.0	10.9	9	4	33	2	100.0
12	79010.0	11565.0	38.6	3780.0	12.6	7	486	36	1	100.0
15	108800.0	11674.0	36.9	3009.0	10.0	8	4	33	2	100.0
13	109200.0	11692.0	39.0	2588.0	8.6	7	4	33	2	79.4
17	108800.0	11727.0	39.1	2673.0	8.9	7	4	33	2	100.0
3	105800.0	11757.0	39.2	3560.0	11.9	10	4	33	2	100.0
1	106200.0	11775.0	39.3	3139.0	10.5	9	4	33	2	79.4
5	105800.0	11810.0	39.4	3224.0	10.7	9	4	33	2	100.0

is the new system information ranked from the least to the most expensive in terms of the annual cost. These two rankings exemplify a certain set of input conditions and it can be seen that, generally, the systems that have higher cash costs (more labor intensive) are lower in total annual cost. With the reduction of available labor and increased wages, the program allows the producer to consider the system trade-offs between labor availability, labor costs and equipment costs.

Another labor consideration is that of the barn crew. The last column in each ranking presents a percent utilization of the crew or crews at a particular harvest rate. Barn crews must work together as units and CATCH increments crew units by one until the producer specified harvest rate is satisfied. The utilization percent indicates the portion of the day that the barn crew is being fully utilized by a particular system at the specified harvest rate. If the utilization percentage is low, these

men may be allocated to other portions of the harvest operation as the producer desires. If this percentage is high, this indicates that the barn crew is being well utilized. This type of management information as well as equipment, labor, costs and the effect of a harvesting aid are available in these rankings pertaining to the individual operation.

The economic rankings previously discussed pertain to systems that would consist entirely of newly-purchased equipment and facilities. A major portion of this purchase cost is that of the curing facility. Table 5 shows a system ranking by annual costs available from CATCH if the producer has existing curing facilities. The type and number of bents of the existing facilities are indicated at the top of the ranking, with the system (including these facilities) designated by the system numbers with asterisks. The investment cost of these systems allows for not having to purchase the existing number of bents

TABLE 5. ANNUAL COST RANKING OF SYSTEMS WITH EXISTING FACILITIES

This analysis includes 10. bents of conventional 4-6 tier barns

System no.	Invest. cost, \$	Annual cost, \$	Ann. cost, cents/lb	Cash cost, \$	Cash cost, cents/lb	Labor, men/day	Transport vehicles	Barn size, bents	Barn crew, men	Barn crew utiliz, %
22*	63600.0	7476.0	24.9	3229.0	10.8	9	4	23	4	85.2
10*	60600.0	7559.0	25.2	3780.0	12.6	11	4	23	4	85.2
23*	54000.0	7641.0	25.5	3173.0	10.6	9	3	23	4	85.2
11*	51000.0	7724.0	25.7	3724.0	12.4	10	3	23	4	85.2
21*	64800.0	7737.0	25.8	3517.0	11.7	10	4	23	4	85.2
9*	61800.0	7820.0	26.1	4068.0	13.6	11	4	23	4	85.2
19	89000.0	9779.0	32.6	3153.0	10.5	9	4	27	6	53.3
7	86000.0	9862.0	32.9	3704.0	12.3	11	4	27	6	53.3
14	90600.0	9914.0	33.0	2874.0	9.6	8	4	27	4	59.5
2	87600.0	9997.0	33.3	3425.0	11.4	10	4	27	4	59.5
18	90200.0	10040.0	33.5	3440.0	11.5	9	4	27	6	53.3
20	90200.0	10094.0	33.6	3104.0	10.3	9	4	27	6	53.3
6	87200.0	10123.0	33.7	3991.0	13.3	11	4	27	6	53.3
8	87200.0	10177.0	33.9	3655.0	12.2	10	4	27	6	53.3
16	107600.0	11413.0	38.0	2722.0	9.1	8	4	33	2	100.0
24	82010.0	11483.0	38.3	3229.0	10.8	6	486	36	1	100.0
4	104600.0	11496.0	38.3	3273.0	10.9	9	4	33	2	100.0
12	79010.0	11565.0	38.6	3780.0	12.6	7	486	36	1	100.0
15	108800.0	11674.0	38.9	3009.0	10.0	8	4	33	2	100.0
13	109200.0	11692.0	39.0	2588.0	8.6	7	4	33	2	79.4
17	108800.0	11727.0	39.1	2673.0	8.9	7	4	33	2	100.0
3	105800.0	11757.0	39.2	3560.0	11.9	10	4	33	2	100.0
1	106200.0	11775.0	39.3	3139.0	10.5	9	4	33	2	79.4
5	105800.0	11810.0	39.4	3224.0	10.7	9	4	33	2	100.0

*These systems include existing barns.

TABLE 6. ANNUAL COST RANKING OF SYSTEMS WITH MODIFIED EXISTING FACILITIES
This analysis includes 10. bents of conventional 4-6 tier barns modified to other types

System no.	Invest. cost, \$	Annual cost, \$	Ann. cost, cents/lb	Cash cost, \$	Cash cost, cents/lb	Labor, men/day	Transport vehicles	Barn size, bents	Barn crew, men	Barn crew utilize, %
22*	63600.0	7476.0	24.9	3229.0	10.8	9	4	23	4	85.2
10*	60600.0	7559.0	25.2	3780.0	12.6	11	4	23	4	85.2
23*	54000.0	7641.0	25.5	3173.0	10.6	9	3	23	4	85.2
11*	51000.0	7724.0	25.7	3724.0	12.4	10	3	23	4	85.2
21*	64800.0	7737.0	25.8	3517.0	11.7	10	4	23	4	85.2
9*	61800.0	7820.0	26.1	4068.0	13.6	11	4	23	4	85.2
14	72250.0	7877.0	26.3	2874.0	9.6	8	4	27	4	59.5
19	69000.0	7959.0	26.5	3153.0	10.5	9	4	27	6	53.3
2	69250.0	7960.0	26.5	3425.0	11.4	10	4	27	4	59.5
7	66000.0	8042.0	26.8	3704.0	12.3	11	4	27	6	53.3
18	70200.0	8220.0	27.4	3440.0	11.5	9	4	27	6	53.3
20	70200.0	8274.0	27.6	3104.0	10.3	9	4	27	6	53.3
6	67200.0	8303.0	27.7	3991.0	13.3	11	4	27	6	53.3
8	67200.0	8357.0	27.9	3655.0	12.2	10	4	27	6	53.3
13	88850.0	9434.0	31.4	2588.0	8.6	7	4	33	2	79.4
1	85850.0	9517.0	31.7	3139.0	10.5	9	4	33	2	79.4
16	91100.0	9581.0	31.9	2722.0	9.1	8	4	33	2	100.0
4	88100.0	9664.0	32.2	3273.0	10.9	9	4	33	2	100.0
15	92300.0	9842.0	32.8	3009.0	10.0	8	4	33	2	100.0
17	92300.0	9896.0	33.0	2673.0	8.9	7	4	33	2	100.0
3	89300.0	9925.0	33.1	3560.0	11.9	10	4	33	2	100.0
5	89300.0	9979.0	33.3	3224.0	10.7	9	4	33	2	100.0
24	79010.0	11150.0	37.2	3229.0	10.8	6	486	36	1	100.0
12	76010.0	11232.0	37.4	3780.0	12.6	7	486	36	1	100.0

*These systems include existing barns. The remaining systems are assumed to include modified existing bents.

while the annual cost reflects a 2 percent charge of the new cost per bent representing the taxes and insurance paid on the curing facility per year.

If these existing curing facilities are of the conventional type (4-6 tier barn), Table 6 presents another economic ranking that is available in the program. This ranking (ranked by annual cost) allows the conventional barn bents to be modified to other types of curing facilities, and compares these systems costs with those systems containing the existing facilities (designated by asterisks). The modification costs were determined by Duncan (1978) and are used only in modifying the conventional type facilities. Modification from other type facilities to conventional is not considered in the program for two reasons. First, the predominant curing facility used in the burley area is that of the conventional type; and second, conversion from all other types to conventional is not feasible or desirable in all cases. The investment cost of the modified systems includes modification costs based on a percent of the new conventional cost per bent. The annual cost includes a fixed cost of new facilities.

These two rankings provide the producer with cost information concerning systems utilizing his existing facilities. They both show the ranking of these systems compared with that of entirely new systems, and the reduction of the investment and annual cost for each. These rankings also provide system comparisons for the producer concerning the feasibility of converting his conventional facilities to other types that would require less labor.

CATCH is a deterministic model which reflects the decisions of the individual producer. While the model is deterministic, the program has the added flexibility of multiple analyses of a particular burley operation. This flexibility allows a producer to vary certain input parameters (Table 1) and determine the effects of these variations on system costs in the economic rankings. An example might be the variation of crop size or wage rate which would allow examination of future situations as well as the present. This added capability makes CATCH

a powerful tool in aiding the producer in decision making.

SUMMARY

The computer model CATCH was developed to provide the individual producer with comprehensive management information concerning burley tobacco harvesting systems. The program utilizes producer inputs to determine costs, equipment and labor for each system, and presents up to four economic rankings containing this information. This program allows the producer to concentrate on the system rather than the individual components that make up each system. CATCH, along with a companion model, STOHR (Yasuhiko Miyake et al., 1979), is available from the Cooperative Extension Service at the University of Kentucky.

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