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Study Paper 79-20

ESTIMATING MACHINERY REPAIR ALLOWANCE:

Programmed for the Texas Instrument 59

by

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ESTIMATING MACHINERY REPAIR ALLOWANCE

Programmed for the Texas Instrument 59

OBJECTIVE: This program is designed to aid the farm manager in deciding between keeping his presently owned machine or trading for a newer one. The approach is simple. An allowance for repairs is estimated, using the savings in fixed costs that would be expected by keeping the machine, plus the average annual repair cost during the period of ownership. If the repair allowance appears adequate for the extended period of use being considered, then serious consideration should be given to keeping the machine. There is no provision for considering tax advantages associated with purchasing new machinery.

VARIABLES AND EXAMPLE DATA: Listed below are the variables used in the calculations, and example data to help make sure your program is running properly.

Variable	Unit	Memory	Example
Original price	\$	00	17,000
Estimated present value	\$	01	11,000
Years owned		02	5
Interest rate	decimal	03	0.12
Total repairs to date (from records)	\$	04	1,200
Additional years you are considering keeping this machine		05	2
Estimated value after additional years of use	\$	06	9,000

PROGRAM OPERATION: Upon proper installation of the program steps in the TI-59 calculator, the following operation can be accomplished:

OperationResult

Press A When the example data in the preceding table have been stored in the proper memories, the calculator should display the value 1720.00. If used with a printer, it will print: EST. REPAIR ALLOWANCE 1720. In other words, you could afford to spend up to \$1,720 for repairs during the next two years and be just as well off as trading machines, other things being equal.

*This program is based on the attached worksheet, "When to Trade Farm Machinery."

PROGRAM LISTING - TI 59

ESTIMATING MACHINERY REPAIR ALLOWANCE: Code 825 (2)

000	76	LBL	050	43	RCL	100	95	=	150	07	7
001	11	A	051	06	06	101	42	STD	151	69	DP
002	58	FIX	052	54	)	102	18	18	152	03	03
003	00	00	053	55	÷	103	85	+	153	03	3
004	53	(	054	53	(	104	53	(	154	02	2
005	43	RCL	055	43	RCL	105	43	RCL	155	04	4
006	00	00	056	02	02	106	13	13	156	03	3
007	75	-	057	85	+	107	65	×	157	02	2
008	43	RCL	058	43	RCL	108	43	RCL	158	00	0
009	01	01	059	05	05	109	05	05	159	00	0
010	54	)	060	54	)	110	54	)	160	00	0
011	55	÷	061	95	=	111	95	=	161	00	0
012	43	RCL	062	42	STD	112	42	STD	162	00	0
013	02	02	063	14	14	113	19	19	163	69	DP
014	95	=	064	53	(	114	25	CLR	164	04	04
015	42	STD	065	43	RCL	115	69	DP	165	69	DP
016	10	10	066	00	00	116	00	00	166	05	05
017	53	(	067	85	+	117	01	1	167	25	CLR
018	43	RCL	068	43	RCL	118	07	7	168	69	DP
019	00	00	069	06	06	119	03	3	169	00	00
020	85	+	070	54	)	120	06	6	170	01	1
021	43	RCL	071	55	÷	121	03	3	171	03	3
022	01	01	072	02	2	122	07	7	172	03	3
023	54	)	073	65	×	123	04	4	173	01	1
024	55	÷	074	43	RCL	124	00	0	174	01	1
025	02	2	075	03	03	125	00	0	175	05	5
026	65	×	076	95	=	126	00	0	176	01	1
027	43	RCL	077	42	STD	127	69	DP	177	07	7
028	03	03	078	16	16	128	01	01	178	00	0
029	95	=	079	85	+	129	03	3	179	00	0
030	42	STD	080	43	RCL	130	05	5	180	69	DP
031	11	11	081	14	14	131	01	1	181	01	01
032	85	+	082	95	=	132	07	7	182	69	DP
033	43	RCL	083	42	STD	133	03	3	183	05	05
034	10	10	084	17	17	134	03	3	184	98	ADV
035	95	=	085	53	(	135	01	1	185	43	RCL
036	42	STD	086	43	RCL	136	03	3	186	19	19
037	12	12	087	12	12	137	02	2	187	99	PRT
038	43	RCL	088	75	-	138	04	4	188	98	ADV
039	04	04	089	43	RCL	139	69	DP	189	98	ADV
040	55	÷	090	17	17	140	02	02	190	98	ADV
041	43	RCL	091	54	)	141	03	3	191	58	FIX
042	02	02	092	65	×	142	05	5	192	02	02
043	95	=	093	53	(	143	00	0	193	91	R/S
044	42	STD	094	43	RCL	144	00	0	194	00	0
045	13	13	095	02	02	145	01	1			
046	53	(	096	85	+	146	03	3			
047	43	RCL	097	43	RCL	147	02	2			
048	00	00	098	05	05	148	07	7			
049	75	-	099	54	)	149	02	2			

If the program will not be used with a printer, or if you do not wish it to print, EST. REPAIR ALLOWANCE, steps 114-186 should be omitted.

WORKSHEET III: WHEN TO TRADE FARM MACHINERY

Description of machine	
1. Original price	<u>\$17,000</u>
2. Estimated present value	<u>11,000</u>
3. Years owned	<u>5</u>
4. Average depreciation: $(\text{line 1} - \text{line 2}) \div \text{line 3}$	<u>1,200</u>
5. Interest rate as a decimal figure	<u>.12</u>
6. Average investment cost: $(\text{line 1} + \text{line 2}) \times \text{line 5}$	<u>1,680</u>
7. Average fixed cost: $\text{line 4} + \text{line 6}$	<u>2,880</u>
8. Total repairs to date (from your records)	<u>1,200</u>
9. Average repairs: $\text{line 8} \div \text{line 3}$	<u>240</u>
10. Number of additional years you are considering keeping this machine	<u>2</u>
11. Estimated value after the additional years of use	<u>9,000</u>
12. Estimated ave. depreciation: $(\text{line 1} - \text{line 11}) \div (\text{line 3} + \text{line 10})$	<u>1,143</u>
13. Estimated ave. investment: $(\text{line 1} + \text{line 11}) \times \text{line 5}$	<u>1,560</u>
14. Estimated average fixed cost: $\text{line 12} + \text{line 13}$	<u>2,703</u>
15. Total estimated savings in fixed costs: $(\text{line 7} - \text{line 14}) \times (\text{line 3} + \text{line 10})$	<u>1,239</u>
16. Estimated repair allowance: $(\text{line 9} \times \text{line 10}) + \text{line 15}$	<u>1,719</u>

* If the value for line 16 does not appear adequate to keep the machine operating for the period of time specified on line 10, consideration should be given to replacing this machine.