CHAPTER 10

CHAPTER X - INTERACTIVE CONSERVATION EVALUATION (ICE)

INTRODUCTION

For instructions in the use of the ICE program see the ICE User's Manual.

The ICE program will function as a stand alone unit or it can be accessed through CAMPS. To access ICE through CAMPS select **DEVELOP AND EVALUATE ALTERNATIVES** from the main menu. From the Develop and Evaluate Alternatives menu select item **G - ICE**.

The Interactive Conservation Evaluation (ICE) software program provides a computerized evaluation process to assist landusers in evaluating and comparing alternative conservation management systems.

The program will analyze and compare the "without condition" and up to 9 additional alternatives. Soil losses are calculated as well as future yields with soil depletion, average annual costs of conservation practices, and using crop budget data will calculate gross returns, cost of production and net returns. Other effects such as impacts on wildlife, water quality, etc., may also be recorded.

An ICE Pre-Evaluation Worksheet has been developed to facilitate the use of the ICE program. The worksheet is useful in gathering and organizing input data needed for the program, especially if the district conservationist is visiting farmers in the field or does not have immediate access to a computer. The worksheet is also extremely useful as a training aid sense it shows what information is needed and organizes it into the proper sequence for entry. Contact your state economist if worksheets are needed.

Examples of the ICE output and an ICE Pre-Evaluation Worksheet follow.

Version 6.5 - Main Menu

Date	Conservationist
July 25 1990	Jim Smith

Press [ESC] when finished

Land user file: LANDK.DAT Crop file: CROPIN.CAS

Practice file: PRACIN.PAS Soil file: SOILIN.SAS

Water Cons. file: WASIN.WAS

New site location

Retrieve site location (landuser) View/change files

Continue with current site location (landuser)

Save current landuser Help

1

ıly 1990 Site Information 01:38:34 P.M.

Land user
Flowers, Red

Land user (operator) ID	State code
1864	26

MLRA no.	Location code	CTU or field no.

2

Soil Name	Erosion Rate where Damage Begins (Range = 0 to 5): Tons/acre
Miami loam	4
Resource Problem	**Problem Description**
Erosion	Sheet and rill A
Water Conservation: OFF	Yield Calculator: AUTO
Interest Rate	**Period of Analysis**
9	1
Alternative Description	**Total Acres**
Corn, cont, fall p	100

3

2 July 1990 Practice Entry 01:41:12 P....

Without condition: Corn, cont, fall p

	Practice Name	Code	Unit Cost	No. Units	Life Exp.	% O&M	% Cost Share
1.	no treatment	000	0.00	100	0	0	0
2.							
3.							
4.							
5.							
6.							

4

Without condition: Corn, cont, fall p

	Crop name	Budget I.D.	Acre Rot Years	Avg Yield	Price/ Unit	Fixed Cost/ Acre	Var Cost/ Acre	Var Cost/ Unit
1.	corn, conventional	26897	1	120	2.75	30.00	137.00	
2.								
3.								
4.								
5.								
6.								

5

1990 Sheet and Rill Erosion 01:42:15 P.M.

Without condition: Corn, cont, fall p

Soil: Miami loam

R factor	K factor	Percent slope
100	.37	6
Soil depth	Bulk density	
8	1.4	
Length	C factor	P factor
125	.29	1

6

July 1990 USLE Sheet & Rill Net Returns & Physical Impact 01:43:09 P.M.

(No cost sharing)

Without condition: Corn, cont, fall p

Crop	Acres	Yield	Yield End	Gross Returns	Cost of Prod.	Net Returns
:orn, conventional	100.0	120	120	33000	16700	16300
Totals:	100.0	120	119	33000	16700	16300

Net returns per Acre: 163 160 Avg. annual return: 15957

Erosion rate: 8.1 Total erosion: 806

Other effects: Road and drainage ditches need frequent cleanout. Very little wildlife habitat and poor water quality. Yields decreasing.

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July 1990 Alternative Entry - 1 01:58:20 P.M

Soil Name	Erosion Rate where Damage Begins (Range = 0 to 5): Tons/acre
Miami loam	4

Resource Problem	Problem Description
Erosion	Sheet and rill A
Water Conservation: OFF	Yield Calculator: AUTO

Interest Rate	Period of Analysis
9	1

Alternative Description	Total Acres
Corn, cont, no til	98

8

Alternative 1: Corn, cont, no til

	Practice Name	Code	Unit Cost	No. Units	Life Exp.	% O&M	% Cost Share
	diversion, feet	362	1.00	300	20	5	0
2.	grassed waterway, acre	412	1200.00	2	20	3	0
3.							
4.							
5.							
6.							

9

2 July 1990 Conservation Cost Summary 01:44:45 P.M.

Alternative 1: Corn, cont, no til

Practice No./Name	Code	Install Cost	Life Expect	O & M	Average Ann. Cost
1. diversion, feet	362	300	20	15	48
2. grassed waterway,	412	2400	20	72	335
Total		2700		87	383

10

Alternative 1: Corn, cont, no til

Crop name	Budget I.D.	Acre Rot Years	Avg Yield	Price/ Unit	Fixed Cost/ Acre	Var Cost/ Acre	Var Cost/ Unit
1. corn, no till	26809	1	120	2.75	33.00	120.00	
2.							
3.							
4.							
5.							
6.							

11

July 1990 Sheet and Rill Erosion 01:46:08 P

Alternative 1: Corn, cont, no til

Soil: Miami loam

R factor	K factor	Percent slope
100	.37	6
Soil depth	Bulk density	
8	1.4	
Length	C factor	P factor
125	.04	1

12

Alternative 1: Corn, cont, no til

Crop	Acres	Yield	Yield End	Gross Returns	Cost of Prod.	Net Returns
n, no till	98.0	120	120	32340	14994	17346
Totals:	98.0	120	119	32340	14994	17346
Net returns per Acre:		177	174	Avg. annual return:		17076
Erosion rate:	1.1	Total erosion:		109		

Other effects: Road and drainage ditches stay clean. Wildlife habitat and water quality greatly improved. Yields should increase over time.

(13)

July 1990 Alternative Entry - 2 01:47:07 P.M.

Soil Name Miami loam	Erosion Rate where Damage Begins (Range = 0 to 5): Tons/acre 4
Resource Problem Erosion Water Conservation: OFF	Problem Description Sheet and rill A Yield Calculator: AUTO
Interest Rate 9	Period of Analysis 1
Alternative Description C 3, Alf 5, convent	Total Acres 100

(14)

Alternative 2: C 3, Alf 5, convent

	Practice Name	Code	Unit Cost	No. Units	Life Exp.	% O&M	% Cost Share
1.	no treatment	000	0.00	100	0	0	0
2.							
3.							
4.							
5.							
6.							

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July 1990 Crop Data Entry 01:48:03 P.M.

Alternative 2: C 3, Alf 5, convent

	Crop name	Budget I.D.	Acre Rot Years	Avg Yield	Price/ Unit	Fixed Cost/ Acre	Var Cost/ Acre	Var Cost Unit
1.	corn, conventional	26897	3	120	2.75	30.00	137.00	
2.	alfalfa-est	26777	1	2	55.00	24.00	35.00	
3.	alfalfa-maint	26778	4	6	55.00	90.00	110.00	
4.								
5.								
6.								

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Alternative 2: C 3, Alf 5, convent

Soil: Miami loam

R factor	K factor	Percent slope
100	.37	6
Soil depth	**Bulk density**	
8	1.4	
Length	**C factor**	**P factor**
125	.1	1

(17)

? ly 1990 USLE Sheet & Rill Net Returns & Physical Impact 01:48:50 P.M.

(No cost sharing)

Alternative 2: C 3, Alf 5, convent

Crop	Acres	Yield	Yield End	Gross Returns	Cost of Prod.	Net Returns
corn, conventional	37.5	120	120	12375	6263	6113
alfalfa-est	12.5	2	2	1375	738	638
alfalfa-maint	50.0	6	6	16500	10000	6500
Totals:	100.0	n/a	n/a	30250	17000	13250
Net returns per Acre:		133	77	Avg. annual return:		9709
Erosion rate:	2.8	Total erosion:		278		

Other effects: Road and drainage ditches stay clean. Wildlife habitat and water quality greatly improved. Yields should increase over time.

(18)

(Average Annual Values)

Alternative Number	Alternative Description	Avg. Annual Returns	Cons. Cost	Net Return After Cons. Cost	Erosion Rate
Without	Corn, cont, fall	15957	0	15957	8.1
With 1	Corn, cont, no t	15704	383	15322	1.1
With 2	C 3, Alf 5, conv	9709	0	9709	2.8

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ICE PRE-EVALUATION WORKSHEET

Date: July 25, 1990
Conservationist: Jim Smith
Land User: Flowers, Red
Land User (Operator) ID: 1864
State Code: 26
MLRA Number:
Location Code:
CTU or Field Number:

Soil Name: Miami loam
Erosion Rate Where Damage Begins tons/acre (Range = 0 to 5): 4
Resource Problem: Erosion
Problem Description: Sheet and Rill (A) or N
Interest Rate: 9%
Period of Analysis: 1 year
Alternative Description[1]: Corn, cont, fall p
Total Acres: 100

1/Abbreviated description of rotation and tillage (i.e. C-B CONV).

WITHOUT CONDITION

PRACTICE NAME	CODE	UNIT COST	NO. UNITS	LIFE EXP.	% O&M	% COST SHARE
1. No treatment	0	0	100	0	0	0
2.						
3.						
4.						

CROP NAME	BUDGET I.D.	AC/ROT YEARS	AVE. YLD	PRICE/ UNIT	FIXED COST/AC	VARIABLE COST/ACRE
1. Corn, conventional	26897	1	120	2.75	30.00	137.00
2.						
3.						
4.						
5.						

R FACTOR: 100 K FACTOR: .37 % SLOPE: 6
SOIL DEPTH (IN): 8 BULK DENSITY (gm/cc): 1.4
LENGTH: 125 C-FACTOR: .29 P-FACTOR: 1
OTHER EFFECTS: Road and drainage ditches need frequent cleanout. Very little wildlife habitat and poor water quality. Yields decreasing.

ALTERNATIVE #1 (RMS, BCS, ACS as appropriate)
ALTERNATIVE DESCRIPTION: Corn, cont, no till TOTAL ACRES: 98

PRACTICE NAME	CODE	UNIT COST	NO. UNITS	LIFE EXP.	% O&M	% COST SHARE
1. Diversion, feet	362	1.00	300	20	5	0
2. Grassed waterway, acre	412	1200.00	2	20	3	0
3.						
4.						

CROP NAME	BUDGET I.D.	AC/ROT YEARS	AVE. YLD	PRICE/ UNIT	FIXED COST/AC	VARIABLE COST/ACRE
1. Corn no till	26809	1	120	2.75	33.00	120.00
2.						
3.						
4.						
5.						

LENGTH: 125 C-FACTOR: .04 P-FACTOR: 1
OTHER EFFECTS: Road and drainage ditches stay clean. Wildlife habitat and water quality greatly improved. Yields should increase over time.

ALTERNATIVE #2

ALTERNATIVE DESCRIPTION: Corn 3, alfalfa 5, convent. TOTAL ACRES: 100

PRACTICE NAME	CODE	UNIT COST	NO. UNITS	LIFE EXP.	% O&M	% COST SHARE
1. No treatment	0	0	100	0	0	0
2.						
3.						
4.						

CROP NAME	BUDGET I.D.	AC/ROT YEARS	AVE. YLD	PRICE/ UNIT	FIXED COST/AC	VARIABLE COST/ACRE
1. Corn conventional	26897	3	120	2.75	30.00	137.00
2. Alfalfa - est.	26777	1	2	55.00	24.00	35.00
3. Alfalfa - maint.	26778	4	6	55.00	90.00	110.00
4.						
5.						

LENGTH: 125 C-FACTOR: .1 P-FACTOR: 1

OTHER EFFECTS: Road and drainage ditches stay clean. Wildlife habitat and water quality greatly improved. Yields should increase over time.

ALTERNATIVE #3

ALTERNATIVE DESCRIPTION: _____ TOTAL ACRES: _____

PRACTICE NAME	CODE	UNIT COST	NO. UNITS	LIFE EXP.	% O&M	% COST SHARE
1.						
2.						
3.						
4.						

CROP NAME	BUDGET I.D.	AC/ROT YEARS	AVE. YLD	PRICE/ UNIT	FIXED COST/AC	VARIABLE COST/ACRE
1.						
2.						
3.						
4.						
5.						

LENGTH: _____ C-FACTOR: _____ P-FACTOR: _____

OTHER EFFECTS: _____

NOTES

If option A of the Problem Description is selected, no additional input data is needed. If option M is selected, additional data will be required. The / / represents data that will be carried forward from other screens and the ( ) represents data that will need to be entered, i.e., inches of top soil lost and the yield associated with that loss.

Depth of Erosion Yields

Without Condition

	Crop		Inches / 0 /	Inches ( )	Inches ( )	Inches / /
1.	/	/	/ /	( )	( )	( )
2.	/	/	/ /	( )	( )	( )
3.	/	/	/ /	( )	( )	( )
4.	/	/	/ /	( )	( )	( )
5.	/	/	/ /	( )	( )	( )

Depth of Erosion Yields

Alternative #1

	Crop		Inches / 0 /	Inches ( )	Inches ( )	Inches / /
1.	/	/	/ /	( )	( )	( )
2.	/	/	/ /	( )	( )	( )
3.	/	/	/ /	( )	( )	( )
4.	/	/	/ /	( )	( )	( )
5.	/	/	/ /	( )	( )	( )

Depth of Erosion Yields

Alternative #2

	Crop		Inches / 0 /	Inches ( )	Inches ( )	Inches / /
1.	/	/	/ /	( )	( )	( )
2.	/	/	/ /	( )	( )	( )
3.	/	/	/ /	( )	( )	( )
4.	/	/	/ /	( )	( )	( )
5.	/	/	/ /	( )	( )	( )

Depth of Erosion Yields

Alternative #3

	Crop		Inches / 0 /	Inches ( )	Inches ( )	Inches / /
1.	/	/	/ /	( )	( )	( )
2.	/	/	/ /	( )	( )	( )
3.	/	/	/ /	( )	( )	( )
4.	/	/	/ /	( )	( )	( )
5.	/	/	/ /	( )	( )	( )